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BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Curſory Reflections on the Means of preventing Emigration from the Highlands.

SIR,

I OBSERVE in your laſt Number, a very pertinent queſtion put by that worthy gentleman, Mr Dempſter, relative to emigration from the Highlands of this country; alſo, the correſpondence betwixt him and Sir John Sinclair, Baronet, concerning the enlargement of farms, which is certainly connected with the queſtion alluded to. Although I by no means conſider myſelf as fully up to all the cauſes which have produced emigration, conſequently imperfectly qualified for pointing out the beſt means of preventing it; yet, in the event of nothing better being ſent, I requeſt that the following curſory reflections may be ſubmitted, as early as poſſible, to the conſideration of your readers.

The Highlands of Scotland, like all other uncultivated diſtricts where manufactures are not introduced, muſt neceſſarily poſſeſs a ſuperfluous population, and, even in the ordinary courſe of affairs, be obliged to throw off periodically a certain proportion of that ſuperfluity, in order that the inhabitants who remain may enjoy the means of ſubſiſtence. This, in fact, has happened for a long time paſt, without attracting much notice, becauſe the operation took place in a gradual and ſilent manner: but ſince the complete abrogation of the feudal ſyſtem, and the

introduction of the new huſbandry, emigration has prevailed on a greater ſcale. It has not been confined to a few individuals, but extended, in many caſes, to whole clans or bodies of people; and, under exiſting circumſtances, probably will not ceaſe, till the country is, in a great meaſure, ſtocked with a new race of inhabitants. I know of no particular meaſures taken by proprietors to obviate or leſſen the certain conſequences of the new ſyſtem, except thoſe attempted by Sir John Sinclair, in Caithneſs, which, I believe, have been tolerably ſucceſsful; though it is the bounden duty of ſuch as are the immediate cauſe of emigration, to take every proper ſtep to prevent it, and provide for the diſplaced inhabitants. I put no blame upon proprietors for introducing the new huſbandry, ſeeing that their intereſt, and perhaps that of the public itſelf, is ſo much benefited by the introduction; but I am not ſure whether they are not reprehenſible in neglecting to deviſe means for the employment of the people removed in conſequence of the change of huſbandry brought about. The comfort, welfare, and happineſs of thoſe thus thrown upon the wide world, in an unprovided ſtate, are not trifling circumſtances; and though I acknowledge the difficulty of forming new habits of life among perſons of mature age, or of rendering a people induſtrious whoſe natural diſpoſitions may have a different tendency, yet aſſuredly the buſineſs is of ſuch importance as at leaſt to merit a trial. To provide accommodation and employment for the Aborigines of the country, who are obliged to ſhift their quarters by a partial or general introduction of ſheep huſbandry, is an important object; and to ſuggeſt ſomething of this nature, is the cauſe of my troubling you with this communication.

As the ground-work of my reaſoning, I ſhall aſſume a hypothetical caſe, though it is in a great meaſure founded upon what is going to take place in a diſtrict where the old ſyſtem has hitherto been chiefly prevalent. It is hardly neceſſary to ſtate, that the baſis of the old ſyſtem is, to keep the land in farms of comparatively ſmall ſize, which are uſually employed in the breeding of cattle, a ſmall part being devoted to tillage for a ſupply of winter fodder. Under theſe circumſtances, the tenantry, generally ſpeaking, are poor, conſequently unable to make improvements; they are wretchedly accommodated, being, in few inſtances, ſo well lodged as the ordinary labourers of the ſouthern diſtricts; they are unprovided with capital ſtock, for taking a part under the new ſyſtem, which makes their removal a conſequence of its introduction. Their poverty, numbers, and idleneſs, prevent rents from being any thing like what can be got with facility from tenants of a different deſcription: hence, ſo long as ſheep huſbandry is ſuch a profitable concern, it may be expected

expected that the old Highland ſyſtem will continue to be gradually given up; and, did not reaſons, not in the leaſt connected with agriculture, influence many proprietors, it is evident that as faſt as leaſes ended, it would be utterly forſaken.

The new huſbandry conſiſts in devoting the ground to the paſturage of ſheep; under which, it has been ſufficiently aſcertained, that much more rent may be gained by proprietors, ſheep being better calculated than cattle for exploring high and upland ſituations, and will thrive, where the other would ſtarve. Sheep farms muſt neceſſarily be of conſiderable ſize; which, of courſe, at all events, leſſens the number of farmers. Beſides, in few inſtances are the old poſſeſſors qualified for carrying on this huſbandry: their ſtocks are inferior to what is required for extenſive undertakings; and this cauſes an importation of new tenants, and even ſervants, into the diſtricts ſo circumſtanced. Attempts have been made to combine various ſtocks; but repeated trials have ſhewn, that it was not practically uſeful. In a word, every attempt to manage a townſhip flock has failed, becauſe ſucceſs in farming depends entirely upon individual exertion.

From what is ſaid, it may be hoped that people, unacquainted with the ſtate of the Highlands, will be able to form a tolerable notion of what inevitably takes place when the new huſbandry is introduced. In the caſe which I argue upon hypothetically, I ſhall ſuppoſe that there are 150 families upon the eſtate in queſtion; that each family conſiſts of 5 individuals; that the population altogether amounts to 750; and that 100 families, or 500 of the inhabitants, are dependent upon the land, and will be deprived of ſubſiſtence in the event of the new huſbandry being introduced. Now, while I do not attach a particle of blame to the proprietor who introduces this huſbandry, ſeeing his intereſt is thereby ſo much promoted, I muſt maintain, that the future lot of the people removed ought to engage his attention; becauſe he is the primary, though innocent, cauſe of their removal. No ſubject whatever calls more loudly for his conſideration. It ſhould occupy his firſt thoughts when he awakes in the morning, and his laſt when he cloſes his eyes at night. In fact, a reſponſibility clings to him, impoſſible to be diſcharged, but by the moſt active exertions.

So far as I have gone, it may be warrantably expected that I will be joined by every perſon, except ſuch as are influenced by the moſt ſordid and ſelfiſh principles: but, whether the ſteps, which I am going to propoſe for leſſening the evils of the new ſyſtem, will be generally viewed as wiſe and practicable, may be ſafely doubted. Every political regulation admits of diſpute, and may be oppoſed on various grounds, by thoſe who conſider

themſelves affected thereby. People of equally good diſpoſitions often ſee the ſame meaſure in different lights; but thoſe who concur with me in eſtimating emigration as a national loſs, or who feel for the wretched ſituation of the Highlanders under exiſting circumſtances, will be diſpoſed to give my ſuggeſtions a candid hearing. I will not take upon me to ſay that the adoption of them would altogether do away every concomitant evil; but ſure I am, that, in many caſes, the welfare of the great body of the people would be materially promoted. Inſtead of being reduced to the neceſſity of emigrating to foreign lands, they would be provided with habitations at home, if they choſe to remain in the country. While their comfortable accommodation is not neglected, the intereſt of the State is attended to; the upland diſtricts of the country are placed under a ſyſtem of huſbandry moſt congenial to their natural circumſtances; and the lowland diſtricts are provided with inhabitants, for carrying on manufactures, or for executing agricultural improvements. To ſuggeſt the meaſures neceſſary to be taken, ſhall now be my object.

Whenever it is determined to introduce the new huſbandry into a Highland diſtrict, the moſt ſpeedy means ſhould be uſed to acquaint the preſent poſſeſſors of the change that is intended, in order that they may have full time for looking out for new ſituations. It ſeems alſo proper, that a complete liſt of the population ſhould inſtantly be made up, diſtinguiſhing the ages, ſexes, and occupations of the ſeveral inhabitants, which will, at one glance, ſhow the number of people that muſt be thrown out of employment, and ſerve to regulate all the after proceedings. Theſe preliminary ſteps being taken, the firſt meaſure that calls for conſideration is the erection of a ſmall village in a centrical part of the eſtate, or more, if the property is extenſive, where ſuch as chooſe to remain within the bounds, or who could procure employment as tradeſmen, labourers, or manufacturers, might be ſecured in a habitation. In the preſent ſtate of the Highlands, thoſe claſſes who compoſe the great bulk of population in many other diſtricts are hardly known; each head of a family is a kind of maſter within his own territories, and manages his little rural matters ſolely with the aid of his wife and children. He is a kind of Jack-of-all-trades, becauſe the extent of labour to to be performed will not allow a diviſion thereof to be made; but, under the new ſyſtem, the baſis of which is an enlargement of farms, a ſtore of labour will be created, and much employment afforded for tradeſmen and labourers of every deſcription. The increaſed opulency of the tenantry will cauſe various improvements to be executed. Draining and encloſing may be ſuppoſed then to go briſkly forward; and, at all events, more

labour

labour will be furniſhed than was actually executed under the operation of the ancient ſyſtem.

One thing here deſerves notice, which is, the antipathy hitherto diſplayed by the old poſſeſſors againſt the new ſettlers, and their obſtinate refuſal to work upon farms where they formerly conſidered themſelves as maſters. This is certainly a difficulty of a ſerious nature, but might perhaps be overcome, were proprietors ſeriouſly to ſhow that they had the real welfare and comfort of the inhabitants at heart. Were ſuch immediately provided with comfortable habitations, inſtead of having to take up with the diſmal huts and ſhealings of the country; were they ſecured, for a few years, of a certain number of days work in each year, or provided with a fixed quantity of oat meal and potatoes, till the new ſyſtem came fully into action; I am almoſt convinced that a number of people, equal to what is wanted, would cheerfully remain in the country, and that the averſion to the new poſſeſſors would gradually die away. Prejudices are not to be forcibly combated; indeed, ſucceſs never accompanied ſuch an attempt; but, by exerting wiſdom and prudence, they will be much abated. Convince the people, not by words, but by actions, that their ſituation will be meliorated, and every cauſe of oppoſition ceaſes.

I have already ſuppoſed, under the hypothetical caſe which I argue upon, that 100 families, conſiſting of 500 ſouls, will be diſpoſſeſſed by the introduction of the new huſbandry, and I think it very probable that the one half of theſe might be accommodated upon the eſtate, were ſuch ſteps taken as I have above pointed out. In erecting the village or villages (as perhaps more than one might be neceſſary), every perſon who was able to build a houſe at his own expence ſhould receive a long leaſe of the ſame, paying only a trifling ſum annually as ground-rent for it, and a garden annexed. Were an acre or two of ground, at a low rent, alſo annexed to each houſe, and to accompany the poſſeſſion in all time coming, much benefit would be thence derived. But, in the event of the old inhabitants being unable to erect houſes for themſelves, ſuch a buſineſs ſhould at once be taken up by the proprietor, whoſe intereſt and character is ſo deeply concerned. I certainly do not exceed probability, when I calculate upon one half of the number being able to erect houſes on their own account; and, to provide for the remainder, 500l. would be ſufficient, allowing 15l. for each houſe, and 5l. for fencing the garden, &c. This outlay would be a permanent melioration of the property, which, in the caſe of an entailed eſtate, could be regiſtered, and made effectual againſt the heirs at an after period.

I believe Sir John Sinclair has adopted a plan ſomething ſimilar to the above, with the ſmall tenants that were removed from his Langwell eſtate. He has, however, if I am not miſinformed, given them a greater extent of ground to cultivate than is here recommended; but it may be doubted whether ſuch people are fitted for bringing in and cultivating land that preſently appears to be in a waſte ſtate. I have pointed out ſuch a quantity as may be ſufficient for labourers and tradeſmen; a quantity, which might be cultivated at their leiſure hours, without materially infringing upon their ſtated time of labour. My object is, not to make them ſmall farmers (for this would not prove beneficial on either ſide), but merely to place them comfortably in a village as labourers or artiſans. In this way, I am convinced, their ſituation would be rendered more happy and agreeable, than if a more extended allotment was given them.

Still ſomething remains to be done with people ſo circumſtanced, till the wheel goes round, till the new ſyſtem comes fully into action, till employment gets into a regular channel; and this can only be accompliſhed by the proprietor. Let him undertake to provide them in work for a given time; ſay, four months in the firſt year, three months in the ſecond year, two months in the third year, and one month in the fourth, if required; and it may be preſumed, that, before theſe periods are elapſed, the affairs of the eſtate will be placed upon a ſtable footing, and aſſiſtance become unneceſſary. If it is deemed more eligible to give an allowance of meal and potatoes, during the above mentioned years, perhaps the ſame object will be reached. Were two bolls of meal and two of potatoes given to each family for the firſt year, and to be diminiſhed according to the ſcale already ſtated, in the ſecond, third, and fourth years, a moſt important benefit would be gained, at an expence comparatively trifling.

That ſome plan or other, calculated to provide for the accommodation and ſupport of thoſe who are diſpoſſeſſed, is neceſſary, I ſhould ſuppoſe, muſt be evident to the moſt ſuperficial obſerver. If any perſon, however, ſhall be diſpoſed to queſtion the neceſſity of a further meaſure, I beg the circumſtances, which accompany a general diſpoſſeſſion, may be ſeriouſly conſidered. The wretched inhabitants are all at once deprived of the uſual means of living, often obliged to remove from their houſes, without the ſlighteſt attention being uſed to provide employment by which they can ſubſiſt, or houſes in which they can be ſheltered. It need not then excite wonder, that, under the influence of diſcontent and deſpair, they are tempted to leave the country, and ſeek the neceſſaries or comforts of life in a foreign land. To emigrate

to the Lowland diſtricts in a body, is not, in many caſes, practicable. Individuals may, and often have done it ſucceſsfully; but a number of families of children cannot be ſo eaſily removed, nor can accommodations be got, unleſs previous means are employed to procure a ſettlement. This brings me to the ſecond meaſure which I mean to ſubmit to the conſideration of Highland proprietors, as calculated to provide for the people removed, and to prevent them from leaving their native country.

Under the ſuppoſition, that one half of the families diſpoſſeſſed, when the new huſbandry is introduced, can be accommodated upon the eſtate in the character of labourers and artiſans, it is obvious, that the remainder muſt either emigrate to foreign countries, or to the Lowland diſtricts. To prevent the former, is a concern of material importance, and may be accompliſhed at a trifling expence, without impoſing reſtraints upon the liberty of individuals, and without ſubjecting proprietors to much trouble or inconvenience.

In all the Eaſtern diſtricts of the iſland, from the Thames to the Moray Frith, the extent of population is leſs than what is required for the purpoſes of trade and cultivation; hence, it is not only difficult to procure people for carrying on extraordinary undertakings, but wages are alſo increaſed, of late, out of all common bounds. The increaſing proſperity of theſe diſtricts will cauſe a ſtill greater demand for labouring people, and produce a further riſe upon their payments, which might be avoided by receiving thoſe who are deſtitute of employment in the Highlands. This has actually happened in many places already; but no regular plan being formed for their reception, when large bodies are turned out of poſſeſſion, the evil on the one ſide has only been partially leſſened, and the benefit on the other only partially gained. Were proprietors, who make a change in the rural ſyſtem of their eſtates, after aſcertaining the preciſe number of people that continued unprovided at home, to ſeek out employment for them in the Eaſtern diſtricts, where population is confeſſedly below what exiſting circumſtances require, I am morally certain, that every one who choſe to work would inſtantly be received with open arms. The ſhorteſt and moſt effectual way of reaching this beneficial end, would be, to advertiſe in the public papers, the number of people to be removed, their ages, ſexes, and the kind of employment each is qualified for undertaking, ſo as a correſpondence might be opened betwixt the parties, in which the proprietor ought to take an active hand. I am for leaving every part of the tranſaction to the free will of the people, and avoiding all things that might ſeem to infringe upon their natural liberty; but, ſure I am, that

very few, who could be thus comfortably accommodated at home, would fly to foreign lands, where difficulties of great magnitude muſt, in the beſt view of the buſineſs, be unavoidably encountered.

According to this plan, a ſmall ſum of money would be neceſſary for each family, in order that the expences of their journey might be defrayed, and furniture provided for their new habitations. To carry off their old furniture, would be an impracticable affair, and perhaps it would be ſold much below its real value; of courſe, ſome aſſiſtance is neceſſary to enſure their comfortable ſettlement. The ſum, however, required for attaining this object, would be nothing at all, when placed oppoſite to the immenſe benefit that might be gained to the public and individuals by ſuch removals. Were even Government to grant ten thouſand pounds *per annum* for their aſſiſtance, I venture to ſay that the object might be effectually accompliſhed.

Thus, I have offered a few curſory reflections upon a ſubject which, of late, has greatly attracted the public notice; and when the motive which dictated them is conſidered, I truſt they will experience a candid and impartial conſideration. I blame no perſon whatever, and allow that proprietors are fairly entitled to make the moſt of their property; though I muſt repeat, that the future welfare and proſperity of the old inhabitants, affected by arrangements, perhaps neceſſary before the full value of that property can be gained, are matters which ought to be attended to. I have pointed out two ways in which this may be done: 1. By providing houſes and employment on each eſtate for as many of the diſpoſſeſſed inhabitants as poſſible. 2. To uſe proper means for ſettling the remainder in the Eaſtern diſtricts of the kingdom, where the ſcale of population is lower than ſatisfies the demand for labour. As the proprietors are the primary, though I confeſs innocent, cauſe of removals, I conſider it as a duty incumbent upon them to be the active agents for putting ſuch regulations in execution; becauſe it is only by the adoption of ſuch meaſures, that the inhabitants can be prevented from emigrating to foreign lands.

Before I am done, allow me juſt to notice the proceedings of the Highland Society on the ſubject of Emigration, as detailed in the ſecond volume of their Tranſactions. That reſpectable body recommend improvement of the fiſheries, the eſtabliſhment of the ſimpler kinds of manufactures, and the opening of communication through theſe remote diſtricts by roads, bridges, and canals. But, with ſubmiſſion, I think it highly probable, that, were even every one of theſe recommendations inſtantly acted upon in the moſt vigorous manner, none of the wiſhed for effects

would

would operate ſo as to prevent emigration in our day. No doubt, roads, bridges, and canals, may ſpeedily be executed, by granting a ſutiable ſupply of money; but the Highlands may be emptied of the Celtic race before fiſheries and manufactures are eſtabliſhed upon a permanent footing. I entertain a better opinion of the meaſures ſuggeſted by them to Government for regulating the conveyance and accommodation of thoſe who emigrate. They are dictated by humanity, and will, I truſt, be ſanctioned by legiſlative authority; though it does not ſtrike me, that the beſt way to prevent emigration is by ſecuring a comfortable paſſage to the emigrants.

It gave me ſome ſurpriſe to learn, from a gentleman well acquainted with the Highlands, that a chief cauſe of recent emigration proceeded from a diſſatisfaction entertained by the inhabitants againſt the eſtabliſhed clergy, raiſed and foſtered by itinerant preachers; but, on this head, I believe, no alarm need take place; for if the people were temporarily happy, they would be under no neceſſity of emigrating to America for ſpiritual comfort. Emigration, on a large ſcale, commenced in 1772, becauſe a conſiderable riſe of rent then took place in ſeveral Highland diſtricts. The American war ſtopped it for a time; at leaſt, it changed the dreſs of thoſe who emigrated. After the peace of 1783, emigration again revived, and continued to 1792, when the war found a vent for the ſuperfluous population. During the nine years that war raged, it is believed more people were taken from the Highlands, than in any former period of the like duration; and the very ſhort peace that followed, furniſhed proofs of the remaining population being greater than the country was capable of ſupporting. But an emigration of this nature, is not what I mean to counteract. My ideas are, that ſuch ſhould be left to take its natural courſe, as it will ſcarcely ever exceed the proper bounds. The object which I have in view is, to provide for thoſe turned out, when the new huſbandry is introduced, this being a forcible meaſure, and cauſing the people to emigrate at all events. Thoſe who view emigration as an evil, and feel for the wretched ſituation of the Highlanders, will concur with me in thinking, that proprietors, in all caſes where the inhabitants are diſpoſſeſſed in conſequence of new rural arrangements, ought to ſtrain every nerve in procuring accommodation and employment at home for thoſe who are turned out. On the contrary, thoſe who view the buſineſs in another light, who conſider it as a proof of the increaſed proſperity of the country, or who judge that the ſcale of population is ſufficient for every national purpoſe, will be of different ſentiments. If actuated by philanthropy, they may recommend a comfortable

tranſport

tranſport of the emigrants, and be anxious that the ſame care is taken of them in the paſſage, as is done with the African negroes; but *real* remedial and preventive means to keep the people at home, by furniſhing them with houſes and employment, will hardly gain their countenance. The number of ſuch people, however, I hope, is not great; and I indulge the pleaſant reflection, that ſome ſcheme or other will be deviſed for meliorating the condition of the Highlanders, and providing for thoſe who are removed from their native homes by an introduction of the new huſbandry into the Highland diſtricts. I am,

Yours, &c.

A RURAL ECONOMIST.

[The following paper was communicated by Sir John Sinclair Baronet, to whom this Work has repeatedly been under great obligations. We are, however, extremely ſorry that, on this occaſion, our limits reſtrain us from preſenting more than the ſubſtance of ſuch an important communication.]

FOR THE FARMER'S MAGAZINE.

Subſtance of a Paper ſubmitted to the Conſideration of the Select Committee, to whom the Survey and Report of the Coaſts and Central Highlands of Scotland, made by the command of the Commiſſioners of His Majeſty's Treaſury, has been referred.

THE ſubject that has been referred to the Committee, is unqueſtionably one of the moſt important that could be ſubmitted to the conſideration of any body of men. About two hundred years have now elapſed, ſince the Britiſh Government has almoſt excluſively directed its attention to the cultivation of its foreign poſſeſſions, leaving the improvement of its territory at home to the exertions of individuals. The adoption of ſuch a plan might be juſtified, if every acre in the united kingdom were cultivated to the beſt advantage; but ſurely, until that is the caſe, we ſhould not be raſh in waſting abroad, what can be employed at home to much more advantage.

It is unneceſſary, at this time, to dwell on the fatal conſequences which this country has experienced from Foreign Colonization, *carried to the extent it was.* It appears that our American Colonies alone coſt us above 40 millions, in addition to all the expences of the various wars connected with thoſe eſtabliſhments,

eſtabliſhments, which amounted to above 200 millions more. What happy effects might not have been expected, had only a ſmall proportion of thoſe ſums been dedicated to domeſtic improvement?

Lord Bacon, whoſe works throw as much light on politics as on philoſophy, in a work entitled, 'Certain Conſiderations touching the Plantation in Ireland,' or the new ſettlements begun in that country, written in the reign of James I., thus ſtates his opinion regarding the means of promoting domeſtic colonoziation.

'I will never deſpair but that the Parliament of England, if it may perceive that this action is not a flaſh, but a ſolid and ſettled purſuit, will give aid to a work ſo religious, ſo politic, and ſo profitable. And the diſtribution of charge (if it be obſerved) falleth naturally into three kinds of charge; and every of thoſe charges reſpectively ought to have its proper fountain and iſſue: for as there proceedeth from your Majeſty's royal bounty and munificence, the gift of the land, and the other materials, together with the endowment of liberties; and as the charge which is private, as building of houſes, ſtocking of grounds, victual, and the like, is to reſt upon the particular undertakers; ſo, whatever is public, as building of churches, walling of towns, town-houſes, bridges, and cauſeways, or highways and the like, ought not ſo properly to lie upon particular perſons, but to come from the public eſtate of this kingdom, *to which this work is like to return ſo great an addition of glory, ſtrength, and commodity.*' *

The principles which Lord Bacon thus eſtabliſhed, were actually carried into effect by the celebrated Frederick of Pruſſia, who, fortunately for his kingdom, having no diſtant poſſeſſions to attend to, was led to dedicate his active mind to domeſtic improvements, promoting the cultivation of waſtes, the introduction of new ſettlers from foreign countries, (inſtead of permitting emigrations from his own), the building of cottages, the draining of marſhes, the forming of canals, the diviſion of commons, (for the encouragement of which premiums were given), and other objects of a ſimilar nature. The ſum he annually laid out for thoſe purpoſes, (a particular detail of which will be found in Count Hertzberg's works), was very conſiderable for the narrow reſources of his kingdom, amounting to no leſs a ſum than 300,000l. ſterling *per annum*; but inſtead of being impoveriſhed by ſuch liberal grants, he thereby increaſed his revenue ſo much as to leave behind him a treaſure in ſpecie, to

* See his works in folio, Vol. iv. p. 406.

to the amount of about twelve millions ſterling. What might not then be effected in this country, were ſimilar meaſures to be purſued?

The Northern part of Scotland, to which the Report referred to the Committee principally relates, poſſeſſes within itſelf various reſources, which may render it one of the moſt valuable poſſeſſions belonging to the Britiſh crown.

Though (except along the coaſt) it is in general unfit for agricultural operations, yet it produces a ſuperior breed of cattle; and, it has lately been aſcertained, might maintain a fine-wooled breed of ſheep. The hills alſo are full of mines and minerals of the moſt valuable ſorts, and the ſea-coaſts abound with fiſh of the greateſt variety and value.

The number of inhabitants in the Northern Highlands may be calculated at above two hundred thouſand ſouls. But as in thoſe mountainous diſtricts, more eſpecially ſince inoculation has been introduced, population increaſes as faſt as in North America, unleſs new means of occupying the people, are from time to time pointed out, perpetual emigrations muſt be the neceſſary conſequence.

For the purpoſe of furniſhing ſuch employment, the Report referred to the Committee very properly ſuggeſts, 1. Roads; 2. Bridges; 3. Harbours; 4. Naval Stations; and 5. Canals. Some obſervations on theſe, ſhall be ſubmitted to the reader's conſideration.

Roads.—The moſt important means of improvement certainly is roads of communication, as that is the foundation on which the whole ſyſtem muſt depend. That there ought to be a road from one extremity of the iſland to the other, with branches diverging from the main road, where neceſſary, is eſſential in various points of view, as, 1. For the purpoſe of communication with the ſeat of government; 2. For the eaſier conveyance by poſt of commercial intelligence; and, 3. That the cattle and ſheep reared in thoſe remote diſtricts, may be conveyed with the greater eaſe and ſafety to the more fertile counties, where they are prepared for conſumption. The roads alluded to in Mr Telford's Report, are ſo eſſential for thoſe purpoſes, that this part of the plan does not require any particular explanation. It is to be obſerved, that the diſtricts through which thoſe roads are to be conducted, though unable to make any great exertion, yet would moſt readily contribute what they could, to promote ſo important an object.

Bridges.—It is well known, that no roads can be complete without bridges, and that they are particularly neceſſary in a country, where even the ſmalleſt ſtreams are apt to be unexpectedly ſwelled into torrents, and ſoon become dangerous to the traveller.

traveller. No bridges can be more eſſential than thoſe mentioned by Mr Telford; and the ſum which it is propoſed the public ſhall contribute for their erection, is not likely to be objected to.

Harbours.—If the ſafety of commerce, or the improvement of the fiſheries, are objects worth attending to in thoſe remote diſtricts, it is evident that they cannot be obtained without the advantage of harbours. The advantages to be derived from the harbours recommended in Mr Telford's two Reports, can hardly be queſtioned, both with a view to the fiſheries, and to the general commerce of the country. In regard to the propoſed harbour at Wick, in particular, *it is in fact a national object*; for it would furniſh ſhelter, not only to the coaſting trade, but to the foreign commerce of the kingdom. Within theſe few years paſt, about 30 veſſels have been wrecked upon that coaſt, the greater part of whom, and their valuable cargoes, would probably have been ſaved, had there been a harbour there.

Canals.—For many years paſt, the idea of cutting a canal from Fort-William to Inverneſs, has been recommended to the public attention, and is at laſt ſubmitted to the conſideration of Parliament. As that ſubject is ſo fully explained in the Report, it ſeems unneceſſary to dwell more upon it in theſe curſory obſervations.

Such are the means of improvement recommended in theſe Reports. Let us next conſider, 1. The expence which the plan will occaſion; 2. The advantages that may be derived from it; and, 3. What would be the beſt mode of carrying it into effect.

The Expence.—1. It is propoſed in the Report, that a ſum not exceeding 96,000l. ſhall be granted by the public, for certain roads and bridges in the northern parts of Scotland, and that a ſimilar ſum ſhall be paid by the land-owners of thoſe diſtricts where they are to be made. The general principle of this propoſal certainly cannot be objected to: but it is ſubmitted whether the proportions to be expected from the land-owners ought not to vary, according to ſituation and circumſtances. It cannot be ſuppoſed, that diſtricts hitherto inacceſſible, can afford as much as thoſe which have already been enriched by commerce and intercourſe; and if this is admitted, any difference of contribution that may ariſe in conſequence thereof, might be defrayed out of the fund ariſing from the balance of the forfeited eſtates, which was originally ſpecially appropriated for the improvement of that part of the kingdom.

2. The expence of the harbours for the improvement of the fiſheries, is ſtated at 6000l.; but that ſum is certainly inadequate for ſo important an object. It is a fortunate circumſtance, that the property of a tract of country, where an admirable harbour may

may be formed, peculiarly adapted as a central point for carrying on the deep-ſea herring fiſhery, has lately been acquired by that public-ſpirited Society conſtituted for the ſpecial purpoſe of improving the Britiſh Fiſheries. The Society is certainly well diſpoſed to make every poſſible effort which its moderate capital will admit of, to promote ſo uſeful an undertaking; but it is to be conſidered, that it has a new ſettlement entirely to create; that the harbour of Wick is not only of importance to that neighbourhood, but may afford ſhelter and protection to a number of veſſels employed, both in the coaſting trade, and in foreign commerce; and, in fact, that it lays a foundation for eſtabliſhing the deep-ſea herring fiſhery, from which this country would derive more profit and naval ſtrength, than from almoſt any new undertaking to which its attention can be directed.

3. The expence of the propoſed Naval Stations, amounting only to 60,000l., 27,500l. of which it is propoſed ſhall be raiſed by private ſubſcription, does not ſeem to require any further explanation, than what is contained in the Report.

4. The Caledonian Canal is undoubtedly a great national object; and I have no doubt, if peace had continued for ſome years, that numbers of perſons would have readily taken a concern in it, as a fair mercantile ſpeculation. At preſent, it can only be executed by the public; and, when completed, the nation would not only be indemnified for the expence, by the advantages of which it would be productive; but if it anſwered the objects in view, of ſhortening and rendering ſafer and more commodious the communication between the eaſtern and the weſtern coaſts of the iſland, it would yield a conſiderable ſurplus income to the exchequer.

If the public were, in the courſe of ſeven years, to be at the whole expence that is above ſuggeſted, amounting in all to 501,450l.; what is it, compared to the benefits which may be expected from that expenditure? Is it poſſible to ſuppoſe, that the nation, either directly or indirectly, would not be benefited, even in a financial point of view, to a much greater extent than the intereſt of the ſum expended, namely, 25,000l. *per annum?* But when it is conſidered, that, at ſo moderate an expence, the commerce of the country will be facilitated; that many thouſands of induſtrious or uſeful inhabitants will be prevented from abandoning their native country; and that the foundation of improvement will be laid in many extenſive and valuable diſtricts; who can refuſe giving every poſſible aid to meaſures, of a nature ſo peculiarly beneficial and important?

Advantages

Advantages which the Country may obtain were the propoſed Meaſures carried into effect.

There is nothing from which this country would probably be enabled to draw more ſubſtantial benefit, than to be enabled to make a fair compariſon between foreign and domeſtic coloniza-tion, in regard to all the leading points of political importance; as, population, agriculture, commerce, manufactures, and naval ſtrength.

1. *Population.*—As to population, there can be no compariſon between the two ſyſtems. The people you have at home, you have them always at your own command, and they muſt furniſh you either with men or money, or with both; whereas the inhabitants of a diſtant colony, may have a jealouſy of the mother-country, or may wiſh to become independent, or may join your moſt inveterate enemies, or may be conquered by them. The population of a domeſtic colony, therefore, produces ſtrength; that of a remote one engenders weakneſs, and becomes the ſource of debility.

2. *Agriculture.*—It is evident alſo, that ſuch encouragements as thoſe above ſuggeſted, may greatly promote the agriculture of a country, and may contribute to render it independent of foreign nations for grain. Though the northern parts of Scotland are in general far from fertile, yet the new modes of improving waſtes, which have been lately introduced there, are likely ſoon to alter the whole face of the country, and may poſſibly, in time, enable it to furniſh thoſe inferior qualities of grain, as oats and rye, which we have hitherto been obliged to import, in ſuch quantities, and at ſuch an expence, from foreign nations. Without, however, roads of communication, to carry on and to promote the internal improvement of thoſe diſtricts, and harbours to import lime, and to export the produce that has been raiſed, agricultural improvements, to any great extent, cannot be expected.

3. *Commerce.*—Nothing is more deſirable for a maritime power, than to extend the navigation and commerce of every part of its dominions. Were the meaſures, above alluded to, carried on, there can be no doubt, that not only the coaſting trade would be improved, but that a very advantageous commerce might be carried on with the Baltic and the Weſt Indies, by which the number of our ſeamen, and the produce of our cuſtoms, would be conſiderably augmented.

4. *Manufactures.*—For the purpoſe of employing thoſe who may not find the means of occupation in agriculture, commerce, or the fiſheries, it would be deſirable to have ſome of the coarſer manu-

manufactures eſtabliſhed in the north, more eſpecially thoſe which we are at preſent obliged to import from foreign countries, as Oſnaburghs, Sileſias, and the like. And if the improvements which are in contemplation were carried on, and ſucceeded to the extent that may be expected, there can be no doubt, that theſe diſtricts would furniſh a new and advantageous market for the manufactures of England; and rival, in that reſpect, thoſe foreign colonies in the principal benefit that can be derived from them.

6. *Naval Strength.*—It is impoſſible, in this ſhort paper, to give any idea of the advantages which might be expected from theſe improvements, in regard to our fiſheries and naval ſtrength. It may be ſufficient to obſerve, that an intelligent individual, the Rev. Herbert Marſh, who made particular inquiries into the ſubject, has given it in evidence before one of the Fiſhery Committees, that the eaſtern coaſt of Caithneſs is the proper ſtation for eſtabliſhing the deep-ſea fiſhery, and rivalling the Dutch in that important branch of induſtry.

Mode of carrying the Plan into effect.

The great difficulty regarding meaſures calculated for public improvement, is the mode of carrying them into effect; ſo as to prevent the waſte of public money, and that the objects in view may be obtained. If the plans abovementioned are fortunate enough to obtain the ſanction of Parliament, they muſt, in a great meaſure, be carried on under the direction of the Treaſury. But as it is hardly poſſible for the Treaſury itſelf to attend to the *minutiæ* of ſo many different undertakings, to enter into proper bargains with the land-owners in the different diſtricts, or with the magiſtrates of the different towns, or to ſee that the contracts are fairly executed, it would be proper to refer theſe particulars to the Board of Truſtees for manufactures and other improvements in Scotland, who have hitherto managed the fund entruſted to their care with much prudence and ſucceſs, and who could conduct this additional concern without occaſioning any farther expence to the public. In this way, alſo, a moſt deſirable object may be obtained—that of making ſome progreſs in the courſe of the preſent year, which would be of the utmoſt importance, with a view of checking the ſpirit of emigration. Indeed, the loſs of one year in carrying on any great national undertaking, ought always, if poſſible, to be avoided.

On the whole, it cannot be doubted, if theſe meaſures are purſued with proper ſpirit, that, in the words of Lord Bacon, *they will prove a ſource of glory, ſtrength, and commodity to the empire.*

pire; of glory to thoſe under whoſe auſpices ſuch important undertakings may be carried on and completed; and of ſtrength and wealth to a country, whoſe inhabitants are thus enabled to extend their commerce, and to improve their ſoil, and are furniſhed with new means of occupation, induſtry, and ſubſiſtence.

S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Scotch Tithe Syſtem further Illuſtrated.

SIR,

IN the ſhort hiſtory of Scotch Tithes written for your Magazine, and inſerted in that of February laſt, although I did not propoſe to detail every thing on the ſubject, yet I perceive that ſome further particulars may with propriety be added.

A proprietor of lands in Scotland, who has acquired no right to his tithes, if he deſigns to improve his eſtate, firſt, with propriety, ſues an action before the Commiſſioners of Tithes, for the valuation and purchaſe of the tithes of his farms.

This action is purſued either againſt the Crown, or againſt any other lay inferior titular of the tithes, if they have been gifted by the Crown; and againſt the clergyman of the pariſh.

By obtaining a valuation of tithes, a proprietor renders himſelf ſecure that he ſhall never after be obliged to pay any tithes for his improvements. By paying the titular nine years purchaſe of the valued tithe-duty, he is ſecure, that, in caſe of any future augmentations of the miniſter's ſtipend, by authority of the Court, for rendering the living more reſpectable, he ſhall pay no more for his property than his rateable proportion with the titular of the tithes of the pariſh.

By act of Parliament 1693, however, the tithes which had belonged to the Scotch biſhops, then fallen to the Crown by the abolition of Epiſcopacy in Scotland, were declared not ſubject to ſale, as long as they remained with the Crown; and they are chargeable for ſtipend only in caſe of all the other tithes of the pariſh being exhauſted. They may, nevertheleſs, be valued, and are not drawn in kind; a practice which, in Scotland, has ever been accounted oppreſſive.

It may be alſo further remarked, that in explaining what the conſtant rent of any lands is by which the tithe falls to be valued, the following rules are obſerved. The rents of quarries,

minerals, moſſes, inns, mills, orchards, &c. are deducted from the rent-roll of the lands. Alſo, if an improvement of rent has been recently made at an uncommon expence, *e. g.* by draining a lake, the proprietor is allowed a reaſonable abatement on that account. A. S.

Note by the Conductor.

It is to be hoped, that our Engliſh readers, who we underſtand are rather puzzled to make out the legal polity of Scotland with reſpect to tithes, will now fully comprehend the principles upon which valuations are conducted, and payments made in this country; but, in order that the whole buſineſs may be brought into one point of view, we preſent the following abſtract:

1. All lay tithes may be valued when the owner chooſes to bring an action for that purpoſe: The fifth of the *free* rent is conſidered to be the tithe; but numerous deductions are made from the *real* rent before this is aſcertained.

2. A valuation being made, the owner or payer is entitled to purchaſe the tithes at nine years amount of their annual value. He is, however, ſubject in all time coming to pay a ſhare of ſtipend to the clergyman of the pariſh where the land is ſituated; but this can in no caſe exceed the amount of the valuation; and even the titular or proprietor of the tithes is rated in the ſame proportion for ſuch lands as he poſſeſſes in the pariſh.

3. The valuation ſecures both proprietor and tenant from paying tithe upon improvements. In fact, tithe in Scotland has only been eſtimated according to what may be called the natural value of the ground; and it is only by forced concluſions that the equity or juſtice of drawing tithe upon any other principle can be demonſtrated.

4. The titulars in Scotland, are people of the ſame deſcription as thoſe ſtyled lay impropriators in England. During the interregnum that followed the Reformation, the titulars ſeized upon many of the tithes; and in the reign of James VI. more were granted to them by that facile monarch. A few were preſerved for the biſhops afterwards ordained; and it is only to ſuch tithes as were held by them, and which at the Revolution reverted to the Crown, that the act of 1633 does not apply. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts on the Effect of Froſt on Growing Corns, &c.

SIR,

THERE is perhaps no ſubject in agriculture more deſerving of a minute and thorough inveſtigation, than that of the effects of froſt upon growing corn, both as preventing the farther filling of the grain, and rendering it unfit for ſeed. A want of attention to theſe matters, has more than once proved injurious to this country, particularly in the years 1783 and 1800. In the firſt of theſe periods, though the ſummer and harveſt were both very favourable, the crop was more defective than in 1782, a late and unfavourable year, in which the crop was almoſt generally froſted, in the northern diſtricts, ſo early as the month of October. It is alſo evident, that the failure of crop 1800 was more owing to the bad or froſted ſeed uſed, than to all other cauſes put together. Notwithſtanding the goodneſs of grain produced, both in 1783 and 1800, the ſcarcity was very great; and prices, of courſe, roſe higher than in the preceding years, when the crops were really damaged by the lateneſs and unfavourableneſs of the ſeaſons. It may naturally be ſuppoſed, that where the intereſt of ſo many individuals was ſo deeply concerned, the utmoſt care would be beſtowed in inveſtigating what was entirely new. I ſay, new; becauſe froſt had for a long time done no material damage to the ripening crops in this country; conſequently farmers and others had every thing to learn on this ſubject.

As I have not obſerved any thing particular, in your Magazine, upon this important buſineſs, I beg leave to preſent you with my obſervations thereupon; and I aſſure you they are not grounded upon theory, but are ſolely the reſult of facts and experience. I muſt premiſe, that grain, injured by mildew or froſt, cannot, by the uſe of any means, be recovered; therefore, the only point deſerving conſideration is, how, or in what manner, we can diſcover what may be ſafely uſed for ſeed. I ſhall conſider, 1. The ſtate of the weather, wherein danger to the growing crop from froſt may be apprehended. 2. At what ſtages of vegetation, or approaching ripeneſs, the worſt effects may enſue. 3. The expoſures and ſituations, where moſt injury is ſuſtained. 4. Whether oats imperfectly filled or ripened, in conſequence of a late ſeaſon, can be fit for ſeed. 5. The appearances by which froſted or imperfect ſeed may be diſtinguiſhed.

In conſequence of the obſervations I have been enabled to make on theſe intereſting matters, I am clearly of opinion, that no degree

of cold that we are acquainted with in this country, can of itſelf prevent the filling of corn, or render it unfit for ſeed; but it is to be remarked, that if a ſevere froſt ſet in during the night, and continue through the next day, or days, without any abatement, but what is occaſioned by a hot ſun, that the heat through the day, unleſs the dew or rine, left by the froſt at night, has been carried off early in the morning by a breeze of wind acting upon the grain in its unripened ſtate, has ſuch a powerful effect upon the growing, and even the ripening corn, as to prevent its farther filling, and render it totally unfit for ſeed. But, however ſevere the froſt be during the night, if it go off next day without ſunſhine, it does not affect the corn in the ſmalleſt degree. It does not even hurt potato ſtems, * which are much more eaſily injured. For it has been often obſerved, that thoſe, from which the rays of the ſun were obſtructed by the branches of a tree, or by any other intervening object, were perfectly ſafe, while the reſt of the field was entirely deſtroyed. Upon this hypotheſis, therefore, that froſt becomes injurious to corn, only by being ſucceeded by ſunſhine, all the obſervations in the remainder of this Eſſay will ſolely depend.

I may here inquire, in what ſtages of vegetation, or approaching ripeneſs, the worſt effects are to be apprehended? On this point, it may be obſerved, in general, that in none of the ſtages of growth, or approaching ripeneſs, are the crops ſecure from the injuries of ſevere froſt, when attended through the day with clear ſunſhine. But corn in its green or milky ſtate will reſiſt it more than when riper or farther advanced. Experience ſhows, that while oats remain uncut, even though fully ripe, they are not altogether without the reach of damage, at leaſt for ſeed. No injury is ſuſtained in this ſtate, in point of mealing, or for any other purpoſe, but rather the contrary; as, by the froſt, they acquire a whiter and brighter colour; are rendered drier and harder; come ſooner into the ſtackyard, and are leſs apt to heat, than would otherwiſe have been the caſe. Grain, in its progreſſive ſtate of filling, and the farther it advances towards ripeneſs, is ſo much the more apt to be hurt by froſt, which inſtantly checks it from filling any more, and renders it at the ſame time unfit for ſeed. Of this, I had full demonſtration in 1783, having ſown very fine looking oats, well kept, and weighing from 14 to 15 ſtone per boll, a weight almoſt equal to the average of good

* Peas and Potatoes are much eaſier hurt by froſt, than any of the white ſpecies of grain. Any moderate degree of froſt will affect theſe preciſely as above; but a very ſevere froſt will hurt the former, even without clear ſunſhine.

good years; yet ſo defective was the ſeed, that not one, perhaps, out of 500 grains, brought forward a plant to maturity. This inſtant check, however, to the farther filling of the grain, and total deprivation of its vegetative power, is produced only by a froſt that is uncommonly ſevere, and which continues through a clear ſunſhine. But the injuries brought upon the ripening crops by the froſt, affect them in every poſſible degree, in a lower as well as a higher manner, from a ſmall hurt, that renders the ſeed ſomewhat more backward to come on in the beginning of the ſeaſon, from which, however, it ſoon recovers; to another, in conſequence of which, it puſhes out one, two, or three ſmall roots, with great difficulty, and in a long time; the leaf ſmall, puny, and of a very bad colour. In this ſtate, a great proportion of the plants die, eſpecially when the ſeaſon ſets in droughty, or is cold and backward. This was very generally the ſtate of the ſeed in 1800. The ſame thing I have obſerved upon particular fields in other years, though damaged in a leſs degree than in 1783, when the leaf came out, if it did come out at all, without any root; and, of courſe, it rarely got above ground, but all periſhed. That theſe various degrees of damage are ſuſtained in conſequence of froſt, is evident from the following fact, which at firſt appeared to me not a little extraordinary, viz. That making a trial of grain, by putting it under a ſod, or in fertile earth, is not a certain criterion by which we can determine whether it will ſufficiently vegetate or not; becauſe, in this way, it will often give ſatisfaction to moſt people, and yet afterwards turn out but very poorly in the field. In making the ſame experiment with barley, I have found the reſult juſt the contrary; for it will anſwer better in the field, than either in this way or in malting. When oats, in their green or milky ſtate, are overtaken by froſt, and thereby ſtopped from farther growth, they are generally rendered black in the kernel (ſheeling). Of this, we have had many proofs, eſpecially in 1782. When in this ſtate, there can be no deception; for no man would chooſe to uſe ſuch oats for ſeed. But when they are conſiderably advanced in filling and ripening, and feel hard when preſſed in the hand, and at the ſame time acquire a white and bright colour, the deception is then very great; and experience alone can determine us to ſet them aſide.

Having pointed out that ſtate of the weather in which corn will be damaged by froſt; and alſo ſhown, that, in no ſtage of filling, or approaching ripeneſs, is the danger diminiſhed, I ſhall next advert to the expoſure of the fields, and ſhow what ſituations will be firſt, or moſt eaſily affected, and alſo what will longeſt reſiſt the froſt, and of courſe be moſt apt to eſcape.

Low lying fields, which are at the foot of hills or high ground, and hanging to the eaſt, ſouth-eaſt, or ſouth, will often be hurt by froſt, which does not in the leaſt affect the higher grounds, or fields hanging to the north or weſt. Theſe are not affected by fogs or vapours riſing out of marſhy ground, as in the caſe of mildews, but from the heat of the ſun early in the forenoon. Higher lying fields, expoſed to the morning ſun, are the next in order that will ſuffer. That theſe various effects are produced, according to the expoſure and ſituation, will be evident to all who pay any attention to the influence of froſt upon the ſtems or tops of potatoes, which, being more diſcernible from the ſudden change of colour, and happening almoſt every year, can hardly fail to come under the eye of every obſerver.

On the other hand, the fields which will eſcape damage from froſt, or reſiſt it longeſt, are thoſe which lye within two or three miles of the ſea, or at ſuch a diſtance as that the ſea breezes can, in the morning, drive off the froſt, before the heat of the ſun has power to hurt. Of this we have had experience in the worſt of years. The oats, in ſuch places, though deficient in weight, were perfectly fit for ſeed, and had loſt none of their vegetating powers. Lands lying to the north or weſt, ſo as that the high ground to the eaſtward defends or obſtructs the rays of the ſun from reaching the crop for a conſiderable time through the day, are the laſt in the inland parts of the country to be damaged, and will often eſcape when all other fields are hurt. In the year 1782, the froſt was ſo ſevere, that ſcarcely any ſituation could protect the crop.* In 1799, the weſt and north lying fields, as above deſcribed, generally came off with very little damage, in compariſon of thoſe lying to the eaſt or ſouth. And in all

* Perhaps it was as much owing to ignorance or want of experience in the people, as to the ſeverity of the froſt that year, that the ſeed proved ſo abortive. The beſt, or earlieſt ripened oats, were ſown without any other inveſtigation; but, except in very early ſituations, none of them were weighty. Thoſe who had none of this kind, rather than ſow their own, bought from others. As the ſeaſon advanced, theſe were found to be the moſt defective. The lateſt and greeneſt of the oats were then ſeen to produce the greateſt number of plants; ſo that it was the general opinion, at all public meetings, that, had they ſown their own, they had done much better. This difference, no doubt, aroſe from the northerly expoſure of the weak oats, while growing, and their reſiſting the froſt in their green ſtate. Their fitneſs for ſeed was not univerſal. I ſowed part from a field hanging very much to the weſt, which anſwered tolerably well. I ſowed a part likewiſe from a field lying to the ſouth: from this there was not one ſtalk produced.

all years when a ſevere froſt ſets in early in the ſeaſon, as was the caſe in both the years above mentioned, the only hope of ſeed is from oats produced on fields either of a weſt or north expoſure. Immediately after a ſevere froſt, and bright ſunſhine ſucceeding, any field of oats affected by it, will be known by the difference of its appearance. It receives a bluiſh, ſpeckled colour, different from what it had before, and alſo from what it would have attained in the courſe of ripening. Should rain fall ſoon after, as it frequently does, and the crop recover its former appearance, remain green, and in a filling ſtate; in that caſe, it has thrown off the froſt, and there remains no danger. But if, after the rain, (if any does fall), it retain the froſted colour, and ripen faſt, it is by no means to be truſted for ſeed. This is the only ſure criterion whereby one can poſitively judge, whether oats that have come under a ſevere froſt are to be fit for ſeed or not. For it may be taken as a certain fact, that whatever degree of froſt puts a ſtop to the farther filling of grain, hurts or deſtroys its vegetating powers, and thereby renders it quite unfit for ſeed.

With regard to oats that are ill filled, or ill ripened, by a late and unfavourable ſeaſon or ſituation, I have obſerved, that they may be uſed for ſeed, and are only rendered unfit, from being overheated in the ſtackyard, or from vegetating before or after reaping, or from froſt. If oats have been overheated in the ſtackyard, whether weak or ſtrong, they muſt thereby be conſiderably hurt, and are of courſe very unſafe to be truſted for ſeed. I know this opinion is different from that of many reſpectable farmers, who do not mind what they call a ſmall heat in the ſtack. But as a ſtack heats very unequally, ſome of it to a great degree, ſome of it leſs, and perhaps ſome part not at all; wherever the heat had gone ſo far as to diſcolour the oats, or any of them, they ought to be rejected for ſeed; and the doing ſo will be juſtified by experience again with regard to ſuch as are vegetated or ſprung before or after reaping. The danger here is more applicable to ſtrong than weak oats. If, on account of warm, rainy weather, in harveſt, a field of oats, fully ripe, be prevented from being cut, even though they be not lodged, they will ſometimes vegetate, and that very generally, though in ſuch a ſmall degree as not to be perceived without very cloſe inſpection. Theſe, if uſed for ſeed, will prove very defective, and the cauſe of their failure may never perhaps be known. Oats vegetating after being cut, as they ſpring farther and more unequally, are eaſily diſcovered, though both the one and the other diſappear upon being fully dried. This, in a warm, rainy harveſt, perhaps requires more attention than is generally imagined. Some part of a crop of oats is found weak, that is, deficient in weight, and not come

to full maturity in almoſt every ſeaſon—in an early as well as in a late year: but, if not hurt by froſt; by having begun to vegetate, or by being heated in the ſtack-yard, they will be found to grow, when uſed in ſeed, juſt in proportion to their ſtrength; that is, they will bring up plants, but not ſo ſtrong and vigorous as thoſe produced by heavier and better oats; yet, if favoured by a good ſeaſon, they may come forward in the end to be a very good crop. They cannot reſiſt bad weather as ſtronger ſeed would do; and require more time on the ground, that is, they are not ripe and ready for the ſickle ſo early as the ſtronger oats; but they are always to be preferred to ſeed, be its weight or ſtrength what it will, that is damaged by froſt, or in any other way whatever. The weakeſt of all the oats known, is the black one, with a ſtrong huſk and a long beard, called in the north of Scotland, ſmall corn. The wild oat is very like this, both in ſize and colour; and both of them reſiſt the froſt beyond all others, there being ſcarcely an inſtance of either of the two being hurt by it ſo much as to be rendered unfit for ſeed. But this is of no great conſequence, as the former are falling into diſuſe; and as to the other, it has ever been the endeavour of every good farmer to extirpate them altogether.

Mildew appears to be the greateſt obſtruction (froſt excepted) in preventing oats from coming to maturity, eſpecially in an early ſeaſon. But this ſeems to alight more upon the ſtem than upon the grain, rendering it incapable of tranſmitting any more ſubſtance or weight into the grain, but not hurting its vegetative power. So that, if it has got ſufficiently far advanced in ripening, a mildew will not render it unfit for ſeed; and if it has not, it will ſtill grow, but proportionably feeble according to its weight. Of this I have had ſufficient proof; having ſown both the one and the other, oftener than once, in the ſame field, in order to aſcertain the difference. Oats ripened very late in a bad ſeaſon, if they have eſcaped damage from froſt, and have been well kept through the winter, are to be judged of preciſely in the ſame manner. Barley that is late in ripening, or is weak or ſilly grain, is never fit for ſeed, whether froſted or not.

The next thing to be conſidered, are appearances by which the diſtinction between good and bad ſeed can be readily aſcertained.

This is no doubt the moſt intereſting and material inquiry of the whole, and to which all the reſt are only ſubſervient. But as I have already pointed out every circumſtance that has come under my obſervation, and is connected therewith, there remains, therefore, the leſs to be diſcuſſed. It has been already obſerved,

obſerved, that froſt increaſes the whiteneſs and brightneſs of oats. Therefore, the white coloured oats, in which there is little or no yellow, and where there are few or no green pointed grains to be found, are poſitively to be rejected for ſeed. It may eaſily be believed, that in a late and backward year, none of the oats will acquire that fine white and bright colour which they poſſeſs only in an early and favourable ſeaſon, unleſs it be occaſioned by ſome foreign cauſe. Now, it is certain, that it is occaſioned by the froſt. The yellow looking oats, with a great many green points, can alone be depended on for ſeed, even though they be found both light and ſoft, which in bad years, is very generally the caſe. In this choice, however, one has to combat and to conquer prejudice, and ought to be directed only by judgement. This will no doubt occaſion a very great ſtruggle; nor will prejudice perhaps be entirely overcome, till a few diſappointments are met with, which will ſhow the ſuperiority of the latter kind of grain in the cleareſt light. Upon digging up the froſted ſeed in 1783, from under the ground, I found one uniform characteriſtic in the whole of it, which was, that none of the points of the oat where the ſeed is lodged, (which is oppoſite to that where the beard grows), had ſwelled or expanded in the ſmalleſt degree, notwithſtanding the ſwelling, or even growth of the oat, in other reſpects. This led me to conjecture that this point in all froſted oats would be hard, and reſiſt the touch on preſſure; and upon trying the oats of that year which remained, by that rule, I found them anſwer exactly, as it has done in other years, when the froſt has had the ſame effect upon them. By preſſing oats much froſted, in this manner, I have often ſeen that part containing the ſeed fly off altogether, leaving the reſt of the pickle otherwiſe complete. In examining oats for ſeed by this rule, it is neceſſary to take off the huſk, and preſs the foreſaid point againſt ſome hard ſubſtance, ſuch as the nail of one's thumb. The reſiſtance at the very point is the criterion; for ſuch as are unſound will reſiſt the preſſure, notwithſtanding that every part of the grain except the point may be abſolutely ſoft.

B. K.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Britiſh Opium.

SIR,

It is now known beyond a doubt, that as good opium may be collected in this country, from the *papaver ſomniferum*, as what comes

comes from the Eaſt Indies. From 600 heads of that kind of poppy, I, laſt year, collected five drachms of pure opium, which made eight ounces of tincture, equal in quality to what is made from foreign opium. The method of collecting opium is well deſcribed by Mr Jones, in the 18th volume of the Tranſactions of the Society of Arts. The high price of opium ſeems to have encouraged the adulteration of it in the country where it is collected; a circumſtance of ſerious conſideration in the caſe of a medicine that requires to be doſed out with great exactneſs. The poppy being an annual and hardy plant, it requires no care beyond garden culture; and as the collection of the opium is performed by women and children, I make no doubt but that this drug may be profitably attended to in every part of Great Britain.

Yours, &c. A. H.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Method of Draining practiſed in the Counties of Eſſex, &c.

SIR,

As the method of land-draining, adopted in ſeveral Engliſh counties, eſpecially in Eſſex, Suffolk, and Herts, appears to be imperfectly underſtood in Scotland, I truſt it will not be unacceptable to your readers, to receive a ſhort detail of our cuſtomary practice; eſpecially as Mr Elkington, in his treatiſe on that important ſubject, paſſes it over nearly in ſilence.

It is neceſſary to premiſe, that the chief object in view is, to clear the ground of ſurface water; particularly if it is incumbent upon a retentive bottom, which is accompliſhed by an operation which we call hollow-draining, or land-ditching. On the ſuppoſition that a farm, under the above circumſtances, is taken upon leaſe, the firſt thing which is attended to is to have it completely ſurface-drained, in the way that I am now to mention. Various other plans may be followed; but I ſhall give you a ſketch of the practice in my neighbourhood.

The implements uſed, are a common plough, a hoe, and ſpades and ſhovels of different dimenſions. If the field is flat, we endeavour to find which way the water draws; an object particularly to be attended to, otherwiſe the drain will burſt, and prove of conſiderable injury. Let the declivity of the field be which way it will, it is proper to make the drains aſlant, at the diſtance of betwixt five and ſix yards from each other; for if parallel to the furrows,

furrows, they are liable to injury from the feet of the horſes employed thereon, either in cart or plough, during the after operations. Theſe things being held in view, our method of drainage will be eaſily comprehended.

We firſt begin with the plough, which goes twice up and down, making a deep and clean furrow, and forms the rough outline of the drain. Suppoſing that there is a ditch at the under part of the field, a common ſpade is inſtantly uſed to dig out the ſpace of ground, which the plough, from the turn of the horſes, could not reach, and this is cleaned out by a boy with a ſhovel, to the depth of the furrow ploughed. In converting this furrow into a drain, the work of one man and two boys is neceſſary, who alternately uſe two ſpades, a ſhovel, and a hoe. The firſt ſpade is four inches wide at top, three at bottom, and twelve in length; the ſecond is three inches wide at top, two at bottom, and fifteen in length; the hoe reſembles a ſcoop, is about two inches diameter, and a foot long, with a crane neck, in which a long handle is fixed *. After the plough, the firſt ſpade is uſed, and the crumbs are cleaned out by the ſhovel: the narrow ſpade is next reſorted to, and the crumbs occaſioned thereby are taken out by the hoe, when a drain is formed about 24 inches deep, 2 inches wide at bottom, and increaſing gradually towards the top to the breadth of the furrow. During the going on of theſe operations, the other boy is employed in collecting ſtraw, previouſly brought to the field, for filling up the drains, a waggon load of which is generally ſufficient for an Engliſh acre. This is put in with the hand, and afterwards forced down with a ſpade; but great care ſhould be taken, that none of the looſe earth go into the drain with it, otherwiſe the whole work will be, in a great meaſure, rendered uſeleſs.

In laying out theſe drains, it is beſt that every one ſhould be emptied ſeparately; but where this cannot be accompliſhed, we endeavour not to put more than two acres into one leading ditch, which is generally about 2 inches deeper than the drains, in order that the water may go off with greater facility. It ſhould be noticed, that the ends are filled up with a few ſtiff buſhes, over which a little ſtraw is laid, to prevent the earth getting down. The ſubſoil is then turned in by a boy, and the remaining earth by the plough. We pay from 3s. 6d. to 5s. per ſcore of rods (5½ yards each); but the price is regulated by the ſubſoil. If it is loam, ſeldom more than 4s. is paid.

Some

* Should any of your readers wiſh to try the above mode of drainage, I beg leave to refer them to Mr Adam Bogue, Stevenſtone Mains, near Haddington, who poſſeſſes a complete ſet of the tools mentioned.

Some farmers fill up drains, where the ſoil is looſe, with large ſtones, the upper ſpade being only made uſe of. Others with ſmall ſtones, or with ſifted gravel, which I think the beſt plan of all: while ſome uſe ſtraw or underwood. A gentleman in this neighbourhood prefers ſcudding, or twiſting ſtraw into ropes, as is done for ſtacks; but in this caſe, it ſhould be very evenly done, that the earth may not run down the ſide of the drain. It is aſtoniſhing to ſee the alteration made upon a field by this ſimple mode of drainage. One that would previouſly hold water two or three days, gets dry in a few hours, whilſt the under drains will be running with the greateſt rapidity. Allow me to conclude with an extract from Vancouvre's agricultural ſurvey of Eſſex, which exactly correſponds with my ideas upon this ſubject.

Speaking of ſurface draining, he ſays, 'There is no improvement to which the heavy land huſbandry of this county owes ſo much, as to the fortunate introduction and continuance of this practice. The means of melioration, and the conſequent ſources of fertility, thence derived from the ſoil, over and above what it formerly yielded, are not more important in the preſent day, than permanent and precious, as they muſt prove in their conſequences hereafter. The few inſtances of invincible blindneſs to the beneficial effects of this excellent practice, go no farther than to prove, that when work is properly executed, it never ceaſes to produce the deſired effect. To complete an improvement of this nature, much is neceſſary to be attended to. If the field propoſed to be drained lies greatly upon the deſcent, every care ſhould be taken to make the drains bear ſufficiently horizontally; in the *firſt* place, to prevent a too precipitate fall of water, by which the drains would be worn uneven, and a temporary obſtruction occaſion them to blow; and, *ſecondly*, becauſe the more perfectly horizontal the field is, ſo that it lies level free, and affords a ſufficient fall for the water, the leſs occaſion will there be for the ſame number of drains, as would be required upon a ſoil of equal cloſeneſs upon the ſide of a hill. The drains in a field that lies nearly level, draw equally well upon each ſide; whereas, thoſe on the hang of a hill draw only from the higher ſides, and conſequently require them to be made much nearer and cloſer to each other.' I am, yours, &c.

Eſſex, March 26. 1803. R. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

IF you think the following desultory observations, on subjects connected with the design of your Magazine, worthy of a place in it, you will oblige me by inserting them.

On the Turnip Fly.

About the month of August last, the following paragraph appeared in most of the newspapers. 'At Mr Coke's late annual sheep-shearing meeting, no less than 250 agriculturists were present. Before the company separated, a subscription of 200 guineas being closed for the discovery of a preservative for turnips against the insect called the *Fly* (on condition that it proved satisfactory to the subscribers), the secret was declared; which is, to sow two pounds of radish seed, on every acre of turnip land, with the turnips; which, according to the declaration of the inventor, will so attract the fly, as to prevent its proving at all injurious to the turnips.'

The following extract from the Annual Register for 1768, will completely shew that this is no new discovery; and that as an account of this preventative against the turnip fly has been already *published*, the person claiming the above 200 guineas, can have no just title to any reward.

In an account of 'An improved method of cultivating the turnip cabbage,' sent by Mr Reynolds of Adisham, in Kent, to the Society for the Encouragement of Arts, &c. dated the 13th May 1768, the following passage occurs: 'As the flies will be apt to fall upon, and destroy the young seedling plants, the following remedy should be used. Mix the intended seed with long-topped radish seed, which the flies much admire: The radish leaves being quick growers, will entertain these insects until the other seed plants get out of their way; but if they are very numerous, run a light roller over them, night and morning, while the dew remains. This will lick up most of them, if duly performed; for a little moisture causes both them and the earth to stick to the roller; by which means the enemy will be removed, and the young plants no way injured by it.

'*N. B.*—One pound of radish seed is sufficient for ten or twelve pounds of turnip cabbage; but cabbage and cauliflower require more, especially the latter.'

On

On the Weather.

Nothing would be of more importance to agriculture, than a rational theory of the weather; but although meteorological obſervations have of late years been multiplied to a great extent, yet ſtill I am afraid our *data* are not ſufficient to enable natural philoſophers to form a rational theory.

The variety of circumſtances to be taken into account, before one table of obſervations can be properly compared with another, and the differences in the manner, time and form, obſervable in almoſt all of them, tend more to obſcure, than to elucidate, the ſubject. Such unremitted attention to ſo many objects, is required to form a complete table, that few perſons capable of doing it are inclined, or have it in their power, to beſtow upon it the neceſſary time. The moſt therefore that can be hoped for, but which would be of *infinite conſequence*, would be perhaps a probable conjecture as to the general character of ſucceeding ſeaſons, whether we might look for a dry or a wet ſummer, an open or a froſty winter.

Mr Kirwan (ſee *Encyclop. Britan.* article *Weather*) has lately endeavoured to diſcover probable rules for prognoſticating the different ſeaſons, ſo far as regards Britain and Ireland, from tables of obſervation alone. On peruſing a number of obſervations taken in England from 1677 to 1789, he found,

1. That when there has been no ſtorm before or after the vernal equinox, the enſuing ſummer is generally *dry*, at leaſt, five times in ſix.

2. That when a ſtorm happens from an eaſterly point, either on the 19th, 20th, or 21ſt of May, the ſucceeding ſummer is generally *dry* four times in five.

3. That when a ſtorm ariſes on the 25th, 26th, or 27th of March (and not before) in any point, the ſucceeding ſummer is generally *dry* four times in five.

4. If there be a ſtorm at ſouth-weſt, or weſt ſouth-weſt, on the 19th, 20th, 21ſt, or 22d of March, the ſucceeding ſummer is generally *wet* five times in ſix.

I am inclined to pay ſome attention to theſe rules, from the circumſtance of his 4th one being apparently verified laſt ſummer, at leaſt, in this part of the country; the night of the 20th day of March 1802 having been very ſtormy, the wind ſouth-weſt, and the laſt ſummer having been ſo very *wet*, that we had only nine days quite fair in the whole month of July.

According to the above rule, there are five chances to one, that

that the next ſummer will alſo be a *wet* one; as, on the night of the 19th of March laſt, we had an exceſſive high wind from ſouth or ſouth-weſt, but rather more to the ſouth.

Your Conſtant Reader, S. E.

Roxburghſhire, April 4.

FOR THE FARMER'S MAGAZINE.

[Though we are not fond of inſerting papers in our work already printed and circulated, or of imitating the practice of cotemporary editors, who eke out their Numbers in that way, yet the following account of an Experimental Agricultural Society recently inſtituted, and the rules adopted by them, are ſo much to our mind, that we are induced to lay them before our readers. Wiſhing the Society every kind of ſucceſs, and truſting to be favoured with periodical accounts of their proceedings, we earneſtly recommend their plan to the conſideration of Agriculturiſts in other diſtricts.]

Experimental Agriculture in the County of Durham.

An experimental farm has been a favourite part of the ſcheme, in moſt of the plans ſuggeſted for the improvement of agriculture; but the great expence attending it, the difficulty of finding a farm containing a ſufficient variety of ſoils, of procuring a proper perſon to manage it, and of arranging matters ſo, that the experiments tried thereon ſhould be reported with accuracy, have, together with other obſtacles, prevented it, though promiſing in theory, from being reduced to practice.

On conſidering this ſubject, however, it was ſuggeſted, that by a few individuals, fond of agriculture, aſſociating together, and agreeing to try experiments on their reſpective farms, under ſuch regulations as might tend to prevent miſtakes, many of the advantages of an experimental farm might be obtained: And this ſuggeſtion gave riſe to the idea of forming a Society, the general objects of which ſhould be—

Firſt, To examine, by experiments, the different kinds and merits of graſs, ſeeds, and grain; to inveſtigate their habits, and endeavour to aſcertain what ſoils are beſt adapted to each kind; and to deviſe means to obtain ſuch ſeeds, &c. pure.

Second,

Second, To attend carefully to the rearing of fences, draining of land, and the beſt and moſt expeditious way of cleaning and working different ſoils.

Third, To examine the nature of different manures, and aſcertain the beſt mode of applying them.

Fourth, To find what ſtock is beſt calculated for certain ſituations, to compare the relative quantity of food conſumed by different kinds of ſtock, what food is moſt congenial, &c.

As accuracy, however, ſhould be the leading principle of the Society, its experiments cannot, of courſe, be numerous; but ſhould ſimilar Societies be formed, and enter into a correſpondence with each other, the experiments might be multiplied in a great degree, and accuracy ſtill retained.

RULES.

1. This Society ſhall be limited to twenty-one members.

2. The Society ſhall meet four times in the year, between the 1ſt of February and the 5th of November (both days excluſive) at Ruſhyford. The time of meeting, eleven o'clock in the forenoon.

3. A vacancy happening in the Society ſhall be filled by ballot—Two black balls excluding a candidate.

4. A Committee, conſiſting of five members (three to be a quorum) ſhall be annually choſen, at the firſt meeting in the year, as alſo a Preſident, Vice-Preſident, and Secretary of the Society.

5. The Members of the Committee ſhall be re-eligible.

6. If a vacancy happen in the Committee, it ſhall be filled up by the remaining members, until the next annual election.

7. The expediency of any propoſed experiment ſhall be determined upon by the Committee, previouſly to its adoption by the Society.

8. When any member undertakes an experiment adopted by the Society, two members ſhall be appointed as viſitors, to view with him the ſtate of the land previous to the experiment, inſpect its progreſs, and report the reſult.

9. That the proceedings of each meeting ſhall be entered by the Secretary in a book kept for that purpoſe.

10. If ſimilar Societies ſhall be formed in other counties, this Society ſhall expreſs its deſire of entering into a correſpondence with them.

11. The Society ſhall admit correſponding members, the candidates being propoſed at one meeting, and balloted for the next, two black balls being a rejection. The perſon propoſed muſt not be a reſident of that part of the county of Durham which lies between

between the rivers Tees and Tyne, nor of a diſtrict in which there is an Agricultural Society correſponding with this.

12. If a correſponding member be willing to adopt any experiment recommended by this Society, the Committee will tranſmit him the precautions under which the experiment ought to be carried forward; but the experiment and its reſult are not to be entered by the Society in their journals, or ſanctioned by their authority, unleſs the land on which it is tried be previouſly viewed, and the progreſs of the experiment duly inſpected by an ordinary member, appointed for that purpoſe.

13. No perſon reſiding in that part of the county of Durham, which lies between the rivers Tees and Tyne, ſhall be admiſſible as a viſitor.

14. No converſation on religion, or on general or local politics, ſhall be allowed at the meetings.

15. The proceedings of the Society ſhall be cloſed before dinner. Dinner ſhall be ſerved at two o'clock.

16. On the firſt meeting in the year, each member ſhall pay into the hands of the Secretary ten ſhillings for the ordinaries of the year.

17. Each member ſhall pay one guinea into the hands of the Secretary, as a fund for the expences of the Society.

18. When any member undertakes an experiment adopted by the Society, he ſhall pay the market-price of the article; any *extra* charge to be defrayed from the general fund.

19. No alteration ſhall be made in the rules of the Society, but on the day of electing the Committee; nor no new rule made, except a majority of the Society are preſent.

20. The rules ſhall be printed, and a copy of them ſent to each member.

MEMBERS.

Sir Henry Vane Tempeſt, Bart. Wynyard—Robert Colling, Barmpton—Chriſtopher Maſon, Chilton—George Baker, Elemore—Charles Colling, Kelton—Matthew Culley, Denton—John Trotter, Haughton—John Neſham, Houghton-le-Spring—William Taylor, Biſhop Middleham—George Taylor, St Helen Auckland—Luke Seymour, Woodhouſe Cloſe—John Ralph Fenwick, Durham—William Beckwith, Herrington—Robert Waugh, Biſhop Middleham—Duncomb Shaftoe, Whitworth—James Clark, Burnigill—Robert Surtees, Mainsforth—Richard White, Kelloe—Robert Page, School Aycliff—Ralph Lambton, Lumley Park—John Colpits, Stretlam Caſtle.

Office-Bearers of the Society for the year 1803.—Sir H. V. Tempeſt, Preſident—Robert Colling, Vice-Preſident—Robert Waugh, Secretary.

Acting Committee for the year 1803.—Robert Colling—John Ralph Fenwick—George Taylor—Charles Colling—Luke Seymour.

Days of Meeting for the year 1803.—Friday, April 1ſt—Wedneſday, June 1ſt—and Friday, November 4th.

ROBERT WAUGH, *Secretary.*

Ruſhyford, February 2. 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Obſervations on Shell Marl as a Manure.

SIR,

I am a conſtant reader of your uſeful Magazine, the tendency whereof, to promote the intereſts of agriculture, is indiſputable, and therefore entitled to the ſupport of agriculturiſts. Agreeable to this principle, I have, in compliance with the requeſt of your correſpondent from Ireland, who aſks for information concerning the uſe and application of marl, page 76th of this Volume, ſent you ſome obſervations on its application and good effects as a manure. They proceed from an experience of its uſefulneſs for a number of years paſt, and you are at liberty to inſert them in the Farmer's Magazine.

In the ſouth of Scotland, where my farm is ſituated, we are at a great diſtance from lime; but, in a number of places, this loſs is nearly compenſated by large quantities of fine ſhell marl, which is found in bogs and moſſes; and which I conſider to be a better manure than lime upon a dry warm ſoil; and, upon all other ſoils, except a cold wet mooriſh one, as nearly equal to it.

It is about twenty years ſince I began to marl my farm, one half of which conſiſts of a good dry ſoil, fit for the turnip huſbandry; the other half is mixed with clay, and unfit for turnips and barley, but adapted for almoſt any other crop. Upon both thoſe ſoils, the marl has had a very great effect. Previous to its application, the crops, both of corn and graſs, were but indifferent; but ſince that period, my crops of corn have been very good, fully one third more bolls per acre than before: the graſs, both for hay and paſturage, has been ſtill more benefited by it. The quantity per Engliſh acre that I applied, was from 30 to 35 ſingle horſe cart loads on the dry ſoil, and from 35 to 40 ditto on the clay ſoil; which quantities, upon my farm, I have found ſufficient. Upon very light ſoils, I would

would not adviſe to lay above 20 or 25 ſingle cart loads, as that kind of ſoil is very eaſily overdone, and may, by an overdoze, be rendered a *caput mortuum*. Strong clay ſoils will require at leaſt 50 cart loads to do them properly. It is not eaſy to give this kind of ſoil an overdoze. The above quantities are ſtated as ſufficient for an Engliſh acre, upon the ſuppoſition that the marl is of good quality; for if it is of an inferior kind, an additional quantity per acre muſt be given.

The common way of applying marl, is upon ſummer fallow, or on the face of graſs. Before laying it on fallow, the land ſhould at leaſt get two ploughings, and then be harrowed and rolled, to make the ſurface ſmooth, that the marl may ſpread equally over it; two ploughings ſhould alſo be given after the marl is laid on, to mix it as well as poſſible with the ſoil. In general, the firſt crop receives little benefit from the marl, but it will appear abundantly on the ſucceeding crops; and if the land is properly cultivated, by white and green crops being taken alternately, it will continue to have effect for fifteen or twenty years. After land is newly marled, too many crops ſhould not be taken until it is laid down to graſs, and reſted a year or two. Three crops after newly marled land are ſufficient, viz. firſt, wheat or oats; ſecond, turnips, peas, potatoes, &c.; third, barley. Marl is alſo very often laid upon the face of graſs land at the end of harveſt, or during the winter, and the land allowed to lye in graſs for a year or two afterwards. This I conſider to be the beſt way of applying marl: for, the very firſt ſummer after marling, you have a great additional quantity of graſs; and when the land is taken up for tillage, the effects of it appear eminently upon the firſt crop of corn.

It is a doubt among a number of farmers, whether dreſſing land the ſecond time with marl will have any good effect or not. I know ſome, that have tried it, ſay they can perceive no benefit from it; but, as they are rather far from the marl-pit, I am inclined to think that they have not given the land a ſufficient doze; as I am fully convinced, that the ſecond dreſſing, to make it have proper effect, requires a larger doze than the firſt. Upon this principle, I have two years ago begun to marl my farm the ſecond time; and the enſuing crop will enable me to determine, from real experience, whether marl has a good effect, when repeated, or not; the reſult of which, if you think this of any uſe, may become the ſubject of ſome future communication. I am, Sir, your moſt humble and obedient ſervant,

Feb. 28. 1803. A South Country Farmer.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Hints reſpecting Scots Improvers

SIR,

I HAVE been a reader of your Magazine ſince its firſt publication, and have had reaſon, along with, I ſuppoſe, all your other readers, equally to approve of the utility of the plan, and the excellence of the execution. It muſt give infinite ſatisfaction to every man, who has the good of his country at heart, or who wiſhes well to the beſt intereſt of Scotland, to obſerve that the ſtate of her agriculture has now been brought to a degree of perfection, equal, or perhaps in ſeveral reſpects ſuperior, to that of any other country whatever.

As it ſeems to be univerſally acknowledged that this high degree of perfection, in the ſtate of our Scotiſh agriculture, has been wholly brought about in the courſe of the 18th century, (a period, of ſuch recent date, that facts and circumſtances can be eaſily inveſtigated), I think it would be a very acceptable preſent to the public, and a particular gratification to the lovers of the firſt of all arts, if ſhort notices were given from time to time, in your Magazine, of the means by which, and the men by whom, this fortunate revolution has been effectuated in ſo ſhort a period of time.

In the leading article of Agricultural Intelligence for laſt quarter, in deducing the cauſes of this rapid progreſs of improvement in the courſe of laſt century, I ſee a few well known and illuſtrious names mentioned, as the chief promoters of agriculture in the period referred to; namely, Fletcher of Saltoun, Cockburn of Ormiſton, Hope of Rankeillor, the Earl of Findlater, and Lord Kaimes. But although the merits and exertions of theſe diſtinguiſhed characters are univerſally acknowledged, yet I apprehend that in the ſeveral departments of encloſing, draining, planting, road-making, village-building, cottage architecture, conſtruction of leaſes, preparation of manures; in the diſcovery and combination of the mechanical powers; and in other branches of rural œconomy and improvement; ſeveral other illuſtrious and meritorious names may be included.—Among theſe, I would mention Archibald Duke of Argyle; the great Earl of Stair; the late Alexander Earl of Eglinton; the late Earl of Strathmore; the late Earl of Elgin, the conſtructor of the lime works; Lord Gardenſton; the late Sir Archibald Grant of Monymuſk, the great planter; Mr Craik of Arbigland; Mr Barclay of Urie; Mr John Hunter at Hirſel, the noted Berwickſhire farmer; the Meſſrs. Meikles, the juſtly celebrated millwrights;

wrights; and the Meſſrs. Dickſons, at Haſſendeanburn, the famous nurſerymen.

Detached, and, in ſome inſtances, very particularly detailed accounts of the operations of each of theſe noblemen and gentlemen, are to be found in Wight's Survey of Scotiſh Huſbandry, in the Statiſtical Account of Scotland, in ſome of the numerous tours through Scotland that have been lately publiſhed, or in other publications; but as theſe are bulky and voluminous works, and not acceſſible to every reader, I am of opinion that ſhort and condenſed notices of their exertions and practice might, with much advantage, be occaſionally inſerted in your Magazine. The repreſentation of their labours and ſucceſs, would not only be highly uſeful and inſtructive, and exciting to the preſent improver; but theſe notices might be looked upon as ſo many monuments, erected by grateful poſterity, to the memory of men who ſo much benefited their country, and contributed ſo much to the good of ſociety.

And were ſhort memoirs of the operations and exertions of theſe, and ſome other ſpirited and patriotic noblemen and gentlemen, given occaſionally, they would form a maſs and body of information, from whence a complete and connected hiſtory of Scotiſh agriculture might be deduced, which would not only be entertaining, but highly inſtructive. We would there ſee the former waſte and forlorn ſtate of the country, and the impoveriſhed and miſerable ſituation of the people: We would ſee the obſtacles which theſe ſpirited and ſagacious improvers had to encounter with, from the ignorance, ſloth, and poverty of the tenantry; from the want of markets and ſcarcity of money; from the badneſs of the roads, and difficulty of intercommunication between one part of the country and another; from the great ſcarcity of artificial manures, and the difficulty of preparing them; from the total want of experience and precedent; and, finally, from the want or improper conſtruction of the implements of agriculture, and the ignorance, obſtinacy, and want of ſkill in ſervants: and we would ſee in what way theſe obſtacles were gradually ſurmounted, and how the knowledge and practice of agriculture have been brought to their preſent ſtate of perfection.

If the hiſtory and operations of the eminent ſtateſman, the illuſtrious military captain, or the celebrated writer, are intereſting, and peruſed with avidity; in the ſame way ſhould the hiſtory and operations of the ſpirited and patriotic improver of his country become intereſting, and be ſought after with aſſiduity, as being generally of more importance to ſociety than thoſe of the former characters. The hiſtory and repreſentation of ſuc-

ceſsful enterpriſe, carry with them much valuable inſtruction, as being incentives to ſimilar attempts, and guides in the execution of them. And I may here conclude theſe ſhort remarks and ſuggeſtions with the well known and often quoted obſervation of Dr Swift, 'That that man who doubles the productive powers of the earth, is a more uſeful member of the community than all the race of politicians put together.'

I am yours, &c. AMICUS SCOTIÆ.

London, 8th April 1803.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Potato Curl.

SIR,

THE curl in potatoes, and ſmut in wheat, have been the ſubjects of much ingenious diſcuſſion in various publications; in ſeveral of which it is ſtated, that we know how to prevent theſe baneful maladies. Judging from my own practice, however, I muſt ſay, that I will more readily ſubſcribe to this ſtatement, with reſpect to the latter, than the former diſeaſe. Your correſpondent 'AGRICOLA,' conſiders the checks received by the young plants, about the time of their coming above ground, as the cauſe of curl; and therefore condemns *early* planting, recommending the firſt week in May, or the laſt in April, as the moſt advantageous time for that operation; and, *perhaps*, he is right in thinking that ſuch checks are the *leading* cauſe of curl. Seeing, however, that ſome ſeaſons are early, and ſome late; that we cannot regulate the firſt appearance of the young plants by the time of committing the ſeed to the ground; and that, in ſome ſeaſons, the weather is more warm and ſalubrious to ſuch vegetables, in May, than in June, and *vice verſa*; the difficulty of *prevention*, on this hypotheſis, ſeems inſurmountable. From what 'AGRICOLA' ſays, as to the potatoes from the curled ſtems polluting the ſucceeding crop, it would appear that he ſuppoſes the curl to ariſe, in ſome degree, from imperfect ſeed. He does not, however, ſtate his opinion as to the manner in which the infection is communicated—whether by juxta poſition, or otherwiſe. Some contend that it is communicated in the former way to *perfect* potatoes; others, that it is communicated to thoſe *only* which are raiſed from ſeed taken from curled ſtems; and ſome, that a perfect potato, which has never come in contact with, or near, any of thoſe which have been taken from curled plants, will ſometimes raiſe a diſeaſed ſtem. On theſe points, perhaps,

perhaps, accurate experiments are wanting to enable us to ſpeak confidently.

That imperfect ſeed is the cauſe of curl, is an hypotheſis which has been ably defended; and I muſt own, that facts have ſometimes fallen within my obſervation which greatly corroborate it.

Still, however, I entertain ſome doubts that it is not well-founded; and one cauſe of my ſcepticiſm is, *that, from the ſame cut or ſet, one plant is ſometimes found perfect, while another is curled:* and I ſhould be glad if ſome of the advocates of this theory would, through the medium of your Magazine, be ſo obliging as to inform me how they account for this phenomenon. At preſent, I am more inclined to believe, that inſects and worms (perhaps, in ſome degree, brought forward by checks or blights) are the cauſe of curl, than to adopt any other theory; and, at a future period, perhaps, I may do myſelf the pleaſure of offering you remarks, at conſiderable length, in ſupport of it, and alſo of furniſhing the reſults of ſome accurate experiments in raiſing crops of potatoes from ſhoots, cuts, and *whole* ſets. For reaſons well known to you, however, I cannot at preſent take the liberty of encroaching farther on your time, than merely to ſay, that as you formerly publiſhed a paper from me, on Manuring, and Paring, and Burning, ſigned 'RURICOLA,' and as another correſpondent has, in laſt Number, adopted that ſignature, I ſhall now, for diſtinction's ſake, ſubſcribe myſelf,

Yours, &c. RURICOLA SENIOR.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Superiority of Horſes to Oxen in Farm Labour, and Yoking three abreaſt, in certain circumſtances, without a Driver.

SIR,

NOT having been originally educated in the ſchool of practical agriculture, but having of late years engaged in the practice of it, on a ſmall farm of my own, and having conceived a very warm predilection for it, I am among the number who think that much uſeful information on the ſubject is to be obtained from reading; more eſpecially as, of late years, ſo many intelligent practical agriculturiſts have favoured the public with their obſervations. If I am not much miſtaken, indeed, what may be termed the leading or firſt principles of it, may be very well acquired in this way, and will be found the beſt guide in actual practice afterwards. As this holds good in moſt of the

arts and ſciences, it appears to me not leſs applicable to agriculture. Viewing the matter in this way, I have been a conſtant reader of your uſeful Magazine ever ſince its firſt publication. I am greatly pleaſed to hear of its increaſing celebrity and ſucceſs, and am indeed ſo much a friend to the undertaking, that I could wiſh to ſee it enlarged, even beyond the Appendix and Index, promiſed in the laſt Number at the end of the year. This muſt neceſſarily, as a matter of courſe, be attended with an increaſe of the price of it; but, in an age like the preſent, eager after agricultural information, I muſt ſuppoſe that the generality of your readers would willingly accede to any price for which they had *value received*; and you appear to have abundance of valuable materials crowding on you for that purpoſe. To old expert agriculturiſts, your work may perhaps be of leſs conſequence; but as I am not of that deſcription, and probably a great proportion of your readers are not, I am ready to acknowledge, that I have reaped conſiderable information, and I hope benefit, from it. To your very intelligent correſpondent, who writes 'Strictures on Farm-Management near London,' I feel peculiar obligation. Poſſeſſing a farm, though on a ſmall ſcale, ſimilar in many reſpects to that of his friend to whom he gives advice, I have already begun a plan of improvement on his ſyſtem, which I mean to follow up, becauſe I believe it to be really ſterling. If my abilities were equal to my inclination, I would very willingly ſend you my occaſional contribution to your work; but I have to regret, that this is by no means the caſe; however, I would fain ſhow you, that I am at leaſt not wanting in the latter.

The employment of horſes or oxen in farm culture, has been long a ſubject keenly conteſted; and in almoſt every Number of your Magazine, we have ſomething on it. Were we to attend to ſpeculations, or laboured diſcuſſions, or even the apparently more convincing evidence of detailed calculation on this point, we would be much at a loſs; but the almoſt univerſal preference to horſes by the farmers of this country, is a pretty concluſive argument in their favour. I mean not to enter into any reaſoning on this ſubject, but to ſhow, not merely what can be, or ought to be done by a pair of horſes, but what has actually been performed on my own farm, and under my own eye, in the courſe of laſt year, by a pair of horſes. If I am not much miſtaken, it will rather tend to bear out our farmers in their general preference to horſes; while, at the ſame time, I ſuppoſe ſome of them can produce a greater quantity of work performed by the ſame ſtrength, and in the ſame time. As this ſubject has aſſumed the appearance of controverſy almoſt more than any other, and produced rather pointed language from

from ſome of your correſpondents, I apprehend, that ſuch ſtatements of facts will go farther towards ſettling this knotty point, than any other mode of diſcuſſing it. But to come to particulars. In the *firſt* place, my horſes ploughed one hundred and eight Scotch acres, of ſtrong clay ſoil, with all the harrowings and rollings: they carted above a thouſand carts (ſingle-horſe carts, the way they are always worked) of earth from one ſide of an eight acre field to the other: they brought earth from a diſtance of two miles, to fill, about half way up, three hundred yards of a drain, three feet deep, the ſame width at top, and a ſpade wide at bottom: led out eighty carts of dung to an adjoining field: brought home, thraſhed out, and carried to market, the produce of twenty-nine acres—a heavy crop: were a week employed carting ſtones for making up fences; beſides bringing home the family coals, I ſuppoſe equal to another week; and doing all the other ſmaller jobs about a farm, not eaſily enumerated, but which are well known to be many. All theſe ploughings, harrowings, rollings, and cartings (except filling the earth and dung into the carts), were performed by one man. As I have mentioned the work my horſes performed, it may be proper to ſay how they were treated. They are always fully nine hours in the yoke, when the ſeaſon is far enough advanced to admit of it—five in the morning, and four in the afternoon; when they get three feeds of oats, or, what I have found far preferable, oats morning and mid-day, and raw potatoes at night—hay for fodder. During the ſhort days, they have but one yoking of ſix hours; when they get two feeds of oats, with ſtraw for fodder. In ſummer, they have cut graſs in the houſe during the day, and are put out on good paſture during the night. I believe being out all night makes them more hardy, and is of benefit to their health; but before turning them out, they are allowed to cool in the ſtable, and to be quite filled with cut graſs. I have always found, that two good horſes, well fed, and their work properly timed, will perform as much as almoſt any man is able for, and more than moſt of them will do. I ſhould be glad to hear from ſome of your advocates for oxen, (and I would more particularly addreſs myſelf to your correſpondent in your 7th Number, page 281), what number of his oxen (as they appear to be of a ſuperior kind), and what number of ſervants it would require, to perform the quantity of work ſtated above. This might perhaps afford ſomething like the debtor and creditor ſtatement, although not preciſely what the Conductor, in his note to that correſpondent, mentions. If your correſpondent MAGO receives from ALFRED an anſwer to his firſt query, page 54. of your laſt Number,

ber, this may perhaps ſerve for making a comparative ſtatement with his oxen; keeping in remembrance, that as I have a clay ſoil to manage, there were of courſe many days in the year when my horſes could not work, as I never attempt to plough it wet. On ſuch ſoils, I believe oxen totally inadmiſſible; becauſe, from wet weather, they are often thrown late, and, in that caſe, whenever the weather favours, ſuch *extra* exertion is neceſſary as they are quite unequal to.

As it is not altogether foreign from the ſubject I have been on, I ſhall offer ſome remarks on a paſſage in your Magazine for May laſt, on ploughing with three horſes abreaſt. In page 251. there is a very proper animadverſion on this prevailing practice in Annandale. I am quite ſatisfied, that, in ordinary circumſtances, two good horſes are always ſufficient; but I am alſo ſatisfied, in ſome circumſtances they are not. My farm is of a very deep rich clay, and, I had reaſon to think, had been but ſlightly ploughed for ſome time before I got it: I therefore conceived it would be of great conſequence to give it a deep ſubſtantial ploughing. With this view, in croſſing my ſummer-fallow, it was ploughed to the depth of ten inches, and in ſome places a foot. Although I have a pair of very powerful horſes, I found, that to take ſo deep a furrow in heavy land, was quite oppreſſing them; and as my ſervant had a great averſion to a driver, and no great opinion of the utility of a third horſe yoked in the common way as a leader, he yoked three abreaſt, and drove them as readily as he did a pair. Saving the expence of a driver is a material conſideration; and he cannot be diſpenſed with, in the common way of yoking, where a third horſe becomes neceſſary. I know not whether, in Annandale, where three are uſed abreaſt, a driver is employed. Although it may appear, at firſt ſight, quite a ſimple buſineſs to have three horſes abreaſt driven by the man who holds the plough; yet, upon trial, it will not be found ſo eaſy. It requires both well-trained horſes, and an able ploughman, to do it to purpoſe. The horſes will be found to puſh one another much more than in the common way, and conſequently go over a great deal more ground, which, with the deep furrow, in this caſe, is very ſevere work for the ploughman. I found alſo, that with ſuch a furrow, they could do at leaſt a fourth more work than could be done by two, and with more eaſe to themſelves. They ploughed an eight Scotch acre field in ſeven days; and the work, by excellent judges, was allowed to be done in capital ſtyle. I ſuſpect it would have required eight oxen, with two ploughmen and two drivers, to have performed the ſame work. The concluſion I would

would draw is, that, in croſs-ploughing heavy land, where a deep furrow is judged requiſite, and, conſequently, where at leaſt three horſes would be uſed, they ought to be yoked abreaſt, not merely becauſe it ſaves a driver, but becauſe they will be found much more powerful in the draught, both from being ſo near it, and of neceſſity drawing together. I believe, indeed, they are equal to four, where two are yoked as leaders; and this is not only the opinion of the man who drove them, an excellent and expert ploughman, but of ſeveral neighbouring farmers who were upon the field while they were at work. It is only in croſs-ploughing that three horſes can be uſed abreaſt; for, in ploughing ridges lengthways, it would unavoidably occaſion poaching on the ploughed land. It may poſſibly ſave a little trouble in adjuſting matters to thoſe who might think of trying this method, to mention, that I found mine to anſwer very well. A plough muzzle, wider, and a little ſtouter than that commonly uſed, is neceſſary; about ſixteen inches, with as many holes. The reaſon of this is, that the plough inclines to take a great deal of land. To the muzzle is attached, in the common way, a pretty ſtout plough-tree, five feet two inches long; a ſingle horſe, with a common plough or harrow tree, is yoked to the left hand or land end of the long tree; to the other end of it, are yoked two horſes, preciſely as if they were to be put into the plough by themſelves. The off-ſide, or right-hand horſe, goes in the furrow, in the uſual way, the other two on the land. It is ſcarcely neceſſary to add, that the ſingle horſe muſt have as much of the long tree as makes him equal to the other two—about three fifths; but this will vary a little, according to the relative ſtrength of the three horſes. For adjuſting this readily, there is, on the fore part of the long tree, an iron plate, with ſeveral holes in it. If theſe obſervations are worth your acceptance, they are very much at your ſervice; if not, it will be but little trouble to throw them into the fire. M.

March 4. 1803.

P. S.—In conſequence, probably, of the deep ploughing of my fallow above mentioned, by bringing up good ſoil long buried, my wheat appears rather too thick, although ſown with only eight pecks per Scotch acre: ſix would probably have been ſufficient.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Management of Calves.

SIR,

IN the 13th Number of the Magazine, your correſpondent W. D. wiſhes to know a cure for young calves ſeized with the diſorder called the *cords*. This diſeaſe is very common in Britain, and I believe more ſo in cold weather than in warm, and ſeldom cured; but, if we cannot cure a diſeaſe, we ſhould try to prevent it. I have been in the habit of rearing cattle upwards of thirty years; and if you think my way of managing young calves worth a corner in your intelligent Magazine, you are heartily welcome to a deſcription of it. If I can contribute a mite towards the improvement of my country, it will give me pleaſure.

My cows, when bulled, are regularly noted down in a book; and when they are near the calving, they are watched frequently night and day. How ſoon the calf is dropped, it is received into a large baſket or ſkull, made of willows, with a handle at each end, and plenty of clean dry ſtraw in it. It is then carried by two perſons to the ſtall in the calf-houſe, where it is gently rubbed and dried with ſtraw. My calf-houſe is next to the cow-byre, and is fitted up with ſtalls like a ſtable, about 3 feet wide, and about 5 feet long. Every ſtall ſhuts in by itſelf, with a door and hinges, for fear of the calf lying back too far, to choke itſelf in its binding. How ſoon the mother gets a little reſt after calving, ſhe is milked, and a little of the milk given to the calf, as early as poſſible. If the weather is cold, and the mother long in giving milk, it is taken to the fire, and warmed in a pan until it is blood warm, and then given to the calf, about 6 or 8 gills, according to the ſize of the calf, and repeated four times in twenty-four hours. As the calf gathers ſtrength, the quantity may be increaſed; but too much of milk at one time is as bad as too little, until it is a month or ſix weeks old. When the calf is able to ſtand, I tie it to a ſtake; as it is more in the power of the ſervant to give it milk in that ſituation, than when going about looſe. If a calf gets cold milk, it is ſure to bring on a trembling, and the cords or ſome other malady follows; which I have often ſeen exemplified amongſt the young ſtock of my neighbours. The above has been my ſcheme of rearing calves; and I never had one died of the cords, if fed in this way, and kept dry. I am, Sir, your humble ſervant,

Mearns, 29th March 1803. F. N.

NOTE BY THE CONDUCTOR.

Some other communications have been received on the above ſubject, recommending the like preventive as pointed out by Mr F. N. We believe it has never failed.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Inoculating Sheep for the Scab.

SIR,

ANALOGY, the moſt fertile ſource of error in the theories of metaphyſicians, and the ſpeculations of philoſophers, has, on the contrary, led the way to the moſt important diſcoveries in thoſe departments of phyſiology which regard the organization, functions, and phenomena of the animal body. Whatever difference may exiſt between man and the brutes in an intellectual conſideration, there can be no doubt that the laws, which regulate the corporeal changes of the one, hold equal empire over the operations of the other. Obſervations made on the latter, have been applied with ſucceſs to the former; and, in fact, moſt of thoſe improvements, which have advanced the medical art (in relation to the human body) to its preſent perfection, have originated from an application of thoſe principles, which were deduced from an examination and explanation of the corporeal phenomena exhibited by the lower animals. Morbid affections of a ſimilar nature occur in each; frequently proceeding from the ſame cauſe, frequently attended by the ſame circumſtances, and frequently obviated by the ſame means. But, what is more ſingular, diſeaſes which appeared peculiar to the one claſs, have been found tranſmiſſible to the other, and have actually been employed in this way as a mean of moderating or even preventing the more virulent influence of ſome more inveterate diſeaſe, annually ſwept away thouſands of our fellow creatures. Were it neceſſary to confine the foregoing obſervations, an appeal might be made to the late happy introduction of the Vaccine inoculation, which bids fair to extirpate the ſevereſt ſcourge, and moſt bitter enemy, that ever perhaps ravaged numbers of mankind. If, therefore, we perceive ſuch advantages reſulting to the human ſpecies from the tranſmiſſion of a diſeaſe, thought peculiar to the lower animals; if, conſequently, (as we muſt be) we are convinced, that the principles upon which the phyſical organization of both claſſes depends, are analogous; that the laws which regulate the corporeal changes in either are the ſame, and that concluſions drawn from the one ſide may be alſo applied to the other, and *vice verſa*, indiſcriminately; why heſitate to purſue a path, which expands to ſuch unlimited extent? Not only the malignancy of ſome of the diſeaſes of man may be diminiſhed by a tranſmiſſion of thoſe exhibited by the lower animals; but, upon the ſame principles, the malignant diſeaſes of the latter may in ſome meaſure be counteracted by

by a ſimilar tranſmiſſion from the former? Or, at leaſt, why may we not juſtly conclude that the means, employed to prevent or obviate certain diſeaſes in the human ſpecies, may alſo, with equal ſucceſs be employed to obviate analogous diſeaſes in the inferior animals? It is to this latter point I wiſh to direct your attention; for it ſurely is an object worthy the attention of the farmer, breeder, and improver.

As a matter of ſpeculation, I have for ſome time conceived, that the infectious cutaneous diſeaſe incident to ſheep, commonly known by the name of *Scab*, which, in ſome ſituations particularly, and, in general, deleterioufly attacks our flocks, may (upon the principle already advanced) be prevented or conſiderably checked by a proceſs ſimilar to that practiſed in the human ſpecies in cow and ſmall-pox, viz. by an inoculation with the *virus* of the diſeaſe.

Whatever cauſe phyſiologiſts may aſſign, it is an undoubted fact that infectious maladies are much leſs malignant and deſtructive in their conſequences when propagated by inoculation, than when allowed to diſſeminate themſelves by natural contagion, which is evinced by inoculated ſmall-pox in the human ſpecies. Now, as this fact holds as well with regard to one race of animals as to another, we have thus a preſumptive argument in favour of the poſition advanced. The experimental proof is all which is further required to ſatisfy us with regard to the expediency of inoculating ſheep for this diſeaſe: to convince us, in the firſt place, that the diſeaſe is really milder when propagated in this way; and, in the ſecond place, that the animal is not ſuſceptible of the infection a ſecond time. This more convincing ſpecies of demonſtration I regret not having myſelf been able to bring forward, as the means of actual experiment have not been directly under my power. From this want of experiment I have delayed communicating theſe ideas to you at an earlier period, averſe as your compilation profeſſes itſelf to be, to mere ſpeculation unſupported by fact; and the ſame conſideration might have deferred them to a later period, had I not accidentally found myſelf anticipated in the experiment, by an individual, whoſe rank and ſituation enabling him to make it on a larger ſcale, rendered it conſequently alſo the more deciſive.

In the late Court Gazette from Vienna, there is the following intimation:—'Among the experiments and diſcoveries in rural œconomy, which, on account of their utility, deſerve to be publiſhed, we mark thoſe of the Counſellor Holſmaiſtre, director of the eſtate and domains belonging to the Imperial family. He has on his grounds more than twenty-four thouſand ſheep of the Spaniſh breed. Having loſt, for ſome years, a great many of them,

them, by the cutaneous diſeaſe to which theſe animals are ſubjected, it occurred to him to make the experiment of inoculating them with the *virus* of the diſeaſe. The experiment has been performed ſucceſſively upon 8000 lambs and 2000 ſheep; not *one* of them has died! and there are very few of them on whom the matter has not taken. To complete this proof, Mr Holſmaiſtre has cauſed a ſecond inoculation to be made upon 1000 of theſe animals, and has mixed them with other ſheep infected with the diſeaſe. Not *one* of them took it a ſecond time!

Without conſidering the fact as completely eſtabliſhed even from this moſt reſpectable document, I only wiſh this intimation to be the means of inducing thoſe of our own country, who have the eaſy means of putting it to the proof, to make the experiment. The inſide of the fore thigh may, perhaps, be the place beſt adapted for the inoculation.

With regard to the importance of the inoculation of ſheep, if the efficacy aſcribed to the meaſure is once eſtabliſhed, it is almoſt unneceſſary to offer a ſingle obſervation. It muſt be evident to every one, in the leaſt degree acquainted with the malignity of this cutaneous diſeaſe, and who is ſenſible that, notwithſtanding the uſual precautions of tarring and ſmearing, a whole flock (as ſometimes occurs), of the moſt healthy and promiſing appearance, may have received the taint, before the accompanying characteriſtics of the diſeaſe have rendered the infecting individual an object of ſuſpicion.

It may, however, with propriety be remarked, that as the remedies of tarring and ſmearing are not always effectual; as, in general, they are only applied when the diſeaſe has made its appearance: and as they are attended with conſiderable trouble and expence; any *modus medendi*, which has for its object the entire prevention of all thoſe inconveniences, muſt be well deſerving the attention and experiment of thoſe who are extenſively ſubjected to them; particularly ſo, when we conſider, that as all the remedies heretofore applied can only be conſidered in the light of temporary palliatives, this ſtrikes at the root of the evil, by rendering the flock inſuſceptible to future infection.

'*Nec mala vicini pecoris contagia lædent.*'

Airſhire, March 20. 1803. R. K.

Note by the Conductor.

The above ſpeculation being ingeniouſly executed, cauſes us to give it a place, though we are by no means diſpoſed to think that a preventive is neceſſary againſt a diſorder which rarely happens among the flocks of good farmers; and, when it does happen, is ſo eaſily cured. By the very

very ſimple proceſs of applying tobacco liquor, mixed with a ſmall quantity of ſpirit of turpentine, or, what is better, the ſpirit of tar, the ſcab may be ſoon removed. Notwithſtanding it is our opinion that inoculation (granting it to be a complete preventive) is, in a great meaſure, unneceſſary; yet we will be happy to hear frequently from Mr R. K., who ſeems to poſſeſs talents for ingenious diſquiſition. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Nature, Improvement, and Qualities of the Different Soils proper for Rearing Sheep.

LETTER I.

SIR,

IT may perhaps not be improper to premiſe, that any knowledge I am in poſſeſſion of, was for the moſt part acquired in a diſtrict of the country where the products of ſheep are the principal, I may ſay the only ſource, from which the farmer derives his wealth; of conſequence, that the facts I advance are deduced from experience, not from theoretical ſyſtems, and will be found, for the moſt part, applicable only to ſoils where nature preſents an inſuperable barrier againſt agricultural improvements.

In moſt high-lying grounds, the ſoil may be claſſed into two diſtinct kinds; the one moſt proper for rearing, and the other for feeding. Of the kinds moſt proper for rearing, I ſhall mention, firſt, that variety known by the name of *heath* ground.

The plant, or ſhrub, called Heath, is of a dark brown colour, and puts out a great variety of branches from the ſame root, which form a thick buſhy top. It begins to vegetate about the latter end of May, or beginning of June, and in July is covered with bloſſoms of a whitiſh red colour, which emit a very fragrant ſmell. It continues to be of great uſe for food till April, when more ſucculent herbage begins to ariſe.

A dry ſoil ſeems to be moſt proper for invigorating this plant; as, there, it is always found in its moſt perfect ſtate. On a gravelly ſoil, and in a ſoutherly expoſure, it will vegetate, nay, flouriſh, where ſcarce any other herb will grow. On a gravelly ſoil, where it thrives beſt, it will ſcarcely reach a ſtate of maturity in thirty or forty years; and I am perſuaded, that where no untowardly circumſtance accelerates its decay, it will retain its vegetative powers for hundreds, perhaps thouſands of years. The greateſt height that it attains to in the ſouth of Scotland,

is

is three feet above the ſurface of the ground; but it ſpreads its roots immediately below it to a greater extent.

Though there is but one ſpecies of this plant, yet its qualities vary according to the nature of the ſoil on which it grows. That on a blackiſh loam, incumbent on freeſtone or limeſtone, will, with a little mixture of graſs, feed almoſt as well as ſeveral kinds of green paſture; and that which grows on a mixture of earth and ſand (or gravel), though inferior to the former, is much better than that which is produced on a wet, ſpungy, deep moſs. The two former are called Lea-heath, and the latter Moſs-heath. Perhaps a given number of acres of green paſture will feed more ſheep than an equal number partly covered with heath; but thin land, of the laſt deſcription, poſſeſſes many advantages not to be gained from that of the former, ſuch as the following. Heath continues to grow during freſh weather in winter, when every ſpecies of graſs is decaying, or at leaſt making no advance; and, in partial thaws, the ſnow will be found melted from off it, while other paſtures continue covered; which is owing partly to its cauſtic quality, and partly to its being more expoſed to the action of the wind. In froſts, the ſheep are particularly fond of it, as its cauſticity affords an antidote to the benumbing coldneſs of the rhine; and in time of ſnow, when green paſtures are covered, it is particularly uſeful, as ſheep, by a few ſtrokes of the foot, eaſily ſhake off what is looſely ſuſpended upon its buſhy tops, and thereby get immediate acceſs to food; which not only ſaves the expence of fodder in deep ſtorms, but keeps ſheep in better condition, and renders them more capable of reſiſting the waſting influence of a ſevere ſeaſon. Heath alſo excels all other plants in producing ſound, healthy, and vigorous ſheep. In flocks, where this is a principal part of the food, the rot is never known, unleſs brought on by unſkilful management, bad ſeaſons, or ſome ſuch cauſe. But perhaps theſe advantages may be overbalanced by a farm keeping more ſheep, when turned into green paſture, than when a conſiderable part of it was heath. In making ſuch alteration, however, great regard ought to be paid to the nature of the ſoil. If it is ſuch as will produce graſs of a nutritive quality, the farmer does not conſult his intereſt in allowing it to be overrun with heath; but when it is of a contrary nature, and yields only a kind of inſipid yellow ſog, the alteration ought by no means to be made, as ſog is totally unfit for paſture, and, being naturally almoſt deſtitute of moiſture, ſtrongly reſiſts the penetrating power of froſt; conſequently, often hurtful, by harbouring grubs, and other deſtructive vermin. The quality of the ſoil may be known by the graſs found at the root of the

heath, though this is not always an infallible rule to judge by, as ſuch graſs, being well ſheltered from the cankering froſt winds, will be finer and thicker than when more openly expoſed; and, in ſome caſes, the heath is ſo thick and cloſe, that no graſs will be found at all. The following method for aſcertaining the quality of the ſoil, though ſlow in operation, is ſure in effect:—Burn a ſmall quantity of the heath, and in two years you will find what ſpecies of graſs the ſoil produces. If it be thick, and of a nutritive quality, it will undoubtedly be proper gradually to extinguiſh a certain quantity of the heath; but it is to be obſerved, that where there are many hillocks, or ſmall knows, and the heath growing on theſe only, it will be better not to burn it, as ſuch knows rarely produce any thing but the yellow fog above mentioned, whilſt they ſerve for ſhelter to ſheep in the night-time.

I come next to ſpeak of the propagation of heath, a point of no ſmall importance in ſeveral parts of the country. From its appearance in July and Auguſt, I am inclined to think that it may be raiſed from ſeed; but as this can only be done upon land previouſly prepared by tillage, and on which it would be more adviſeable to ſow ſuch of the graſſes, introduced by an enlightened ſyſtem of agriculture, as may be thought beſt adapted to the ſoil, I ſhall take no further notice of it, but only endeavour to point out ſome method of reinvigorating heath, when not totally decayed. Depaſturing it with hogs only, which is a lighter ſtock than old ſheep, has been found, from experience, to be the beſt reſtorative; as the ground deſigned for them is generally *hained* during the months of July and Auguſt, and the heath thereby allowed to bloſſom fully, after which it is not apt to be deſtroyed that ſeaſon, for, in this caſe, the ſheep eat only the green ſhoots which do not bloſſom. Hence appears the propriety of keeping old ſheep, during the bloſſoming months, from all paſtures where an increaſe of this plant is wiſhed.

I ſhall now offer a few remarks on the means uſed for rendering heath proper for food, when too old, or cankered by froſt winds, &c. which can be effected by burning only.

Moſs-heath requires to be frequently burned; perhaps burning every fourth year is not oftener than neceſſary, to render it palatable and nouriſhing: but this rotation of burning is not applicable to all heath, nor to the ſame ſpecies in every ſituation. To burn lea-heath, where it is ſcarce, and on a ground paſtured with old ſheep, is to annihilate it altogether; as this kind ſprings but ſlowly, and, being more delicate and palatable than moſs-heath, ſuffers not only from the ſheep eating it with greater avidity, but alſo from the cankering ſeverity of froſt winds.

Moſs-

Moſs-heath, on which there is much dependence in the time of ſnow, ſhould not be burned ſo often as that intended for ſummer paſture only, as it continues thin and ſhort for the firſt and ſecond ſeaſons after burning, and conſequently is not ſo able to reſiſt the preſſure of ſnow on its top, and the binding power of froſt at its root, as in a year or two thereafter.

The act for the preſervation of game prohibits burning after the 11th April, and, in ſome ſeaſons, it is impoſſible to burn any before that time; but when this can be proved to be the caſe, an indulgence ſhould be allowed, till a more advanced period of the ſeaſon. At any rate, a farmer who has much high lying coarſe ground, would do better to riſk the payment of a ſmall fine, than loſe a favourable opportunity.

I ſhould now proceed to ſtate the particular times of the year in which heath is moſt proper for the different kinds of ſheep; but this would carry me beyond a proper length, and may perhaps come more immediately under conſideration, when I ſpeak of the influence of ſoils on the conſtitution of ſheep. I am, &c.

5th February 1803. S. L.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Northumberland Breed of Sheep, and the progreſſive Improvements made thereupon.

SIR,

I have often thought that an account of the old breed of Northumberland ſheep, and the progreſſive improvements that have taken place from time to time, by various croſſes, eſpecially with thoſe of the Diſhley or New Leiceſter breed, would be a deſirable paper to fill up a corner of your uſeful Miſcellany; and entertained hopes that ſome of your numerous correſpondents would take it up. Finding myſelf hitherto diſappointed, I venture (however incompetent to the undertaking) to ſend you the following ſketch, which I truſt will prove acceptable to your readers; at leaſt, it may ſerve to ſtimulate ſome abler pen to a more perfect execution of the taſk.

As far as my information reaches, the general breed of ſheep which covered the champaign parts of this county, prior to the above croſſes, were called *Mugs*; a name, deſcriptive of their nature. I remember well to have ſeen many of this breed, particularly a flock on the farm of Heatherſlaw, then in the poſſeſſion of the late Mr Ralph Compton, of Carham. Theſe ſheep arreſted my obſervation ſo forcibly at firſt ſight,

that I examined them with a very attentive and ſcrutinizing eye, and found them ſo truly *mugged*, or grown with wool all over their faces, that I could ſcarcely ſee their eyes. It is difficult to account for the production of ſuch a breed, and ſtill more ſo for the preference given to it by the breeders of that period, in oppoſition to the taſte of thoſe in every other part of the iſland. Indeed, among the numerous bad breeds then to be found, and which are ſtill to be met with in various diſtricts, I do not remember to have ſeen any one ſo completely ugly. The wool grew down to their very toes; their loins were high and narrow; their ſhoulders ſharp, and hollow behind; their ſides flat; and their wool ſhort, and not at all fine. At that period (ſomething more than thirty years ago), there was not a ſingle pack of long, or combing, wool to be found in all Glendale Ward, though hundreds are now produced there.

Upon the coaſt, all the way from North Durham, ſouthward along the diſtrict called Bamburghſhire, to the extenſive pariſh of Warkworth, incluſive, long wool has been grown, I ſuppoſe, for time out of mind; and it is probable that the mugged breed had been more peculiarly confined to the low parts of Glendale and Coquetdale Wards. The coaſt breed, though far from being a valuable one, poſſeſſed many good qualities, which the mugs were deſtitute of. The former, in general, were pretty fine ſhaped ſheep, carried a nice fleece of combing wool, and had tolerably good open looks, and clean legs. Their wool was not ſo long and open as it now generally is; but was thick planted, and the filaments of finer quality. This ſuperiority was obtained by frequent croſſes with the Lincolnſhire breed; which, at that time, were of a more feeding quality, and finer wooled, than ſome years afterwards, previous to their being croſſed with the new Leiceſters. As a proof of the fineneſs of the Lincolnſhire wool at the period alluded to, I need only obſerve, that the late Mr James Robſon of Chatto, a moſt reſpectable man, and breeder of Cheviot ſheep, who then lived at Scotch Belford, purchaſed ſome tups from a Mr Mumby, near Barton upon Humber, in Lincolnſhire, who at that time ſtood high as a ram breeder. Theſe tups, without injuring the quality, greatly increaſed the quantity of the wool, and gave Mr Robſon ſuch a decided ſuperiority over his hill neighbours, that, for many years after making the croſs, he ſold more tups than one half of the hill farmers put together. Perhaps his ſons, who are very eminent breeders of Cheviot ſheep, may ſtill retain this ſuperiority; at leaſt I know nothing to the contrary.

Many

Many people alſo, upon the coaſt, about this time, particularly in the pariſh of Warkworth, got Durham or Teeſwater tups to croſs from. Probably the large ſize, and immenſe weight of this breed,* with the ſimilarity of the coaſt paſtures to thoſe by the river Tees, was the cauſe of this meaſure. From Warkworth pariſh, ſouthward to Tinemouth, and all up the Tyne to the neighbourhood of Hexham, (where the Meſſrs Bates, Joblings, and a few others, formerly kept a permanent breeding ſtock, much of the Biſhoprick or Teeſwater kind), as alſo all the way northward into Coquetdale, nothing but a running ſtock was formerly, and ſtill is, kept; that is to ſay, ewes are bought in at Michaelmas, and they and their offspring all ſold off by the Michaelmas following, or thereabouts. Two reaſons may be aſſigned for this mode of management—Firſt, The land, in general, through a great part of this extenſive tract, is not *found* or ſafe for keeping a permanent breeding ſtock: Secondly, The vicinity to Morpeth market, where amazing numbers of fat lambs are ſold through the whole of ſummer, to ſupply the immenſe conſumption of Newcaſtle, Shields, Sunderland, and all that vaſt population upon the ſides of the rivers Tyne and Wear, where the greateſt coal-works in the world are carried on. Perhaps, too, *miners*, *keelmen*, and *coalheavers*, eat more animal food, in proportion, than any other claſs of people in the iſland; and, as a proof of their ſtrength of appetite, I take the liberty to mention the following anecdote, well known in and about Newcaſtle. The keelmens' wives have long had a practice of dropping quarters of lamb, or joints of mutton, into the keels, from off the bridge at Newcaſtle, as the keel paſſes below. One of the keelmen, ſeeing his wife at her uſual ſtand, cries, '*Drop, drop, d—n you, drop, what are you about?*' The wife replies, '*The d—l choke thee, for that is the ſeventh joint this week.*'

The ſheep upon the coaſt kept gradually improving, by their croſſes with rams from Lincolnſhire and Tees ſide; but the advances ſeem to have been ſlow indeed, when compared to thoſe made in the æra of which we are now to ſpeak, as the mugs were ſtill in poſſeſſion of all the low parts of Glendale, and a conſiderable extent of the low parts of Coquetdale. About the year 1767, the Meſſrs Culleys entered upon the farm of Fenton,

* More than forty years ago, Mr Hutchinſon, of Sackburn, (a farm by the Tees ſide), bred and fed a wedder, which weighed above 60 lib. per quarter. I have loſt my memorandum; but, if I recollect right, the weight of the quarter was 62 lib. and odd ounces; which, I believe, has not yet been exceeded by any in England.

near Wooler; and introduced into this county that moſt valuable breed of ſheep, now generally known by the name of the *New Leiceſters*, though perhaps it ought rather to be called the Diſhley, or Bakewell breed, from the high merit of that extraordinary man, who was certainly the firſt perſon that made the proper diſcriminations between *ſize*, *form*, and *diſpoſition to fatten*. He firſt advanced the principle, that all *ſmall-boned animals*, even of the ſame family, have a greater propenſity to fatten early, and produce fleſh of a firmer texture and grain, than large coarſe-boned ones. This principle ſeems now to be firmly eſtabliſhed, (at leaſt I have not heard of it being controverted), and perhaps holds through all animated nature. It may be ſaid, that Mr Bakewell did not introduce a new or freſh breed from abroad, or even from any diſtant part of this iſland. It is true he did not; but he had the diſcernment to perceive, and the judgement to ſelect, a breed far ſuperior to any that were known before; a breed, that hath not ſince been equalled by any that I have heard of, though fifty years or more have elapſed ſince Mr Bakewell firſt began. It may alſo be ſaid, that the mode was eaſy and ſimple. No doubt it was; but, ſimple and eaſy as it may appear, it was reſerved for a Bakewell to hit it off.

At that period, Mr Bakewell was allowed the pick of all the principal flocks of ewes in his neighbourhood, at the rate of 20s. or 21s. per head; and when the price was afterwards advanced upon him to 42s., he gave up, as, by that time, he had poſſeſſed himſelf of the beſt ewes in that part of the kingdom. As for tups, he hired or bought them, wherever he could meet with the moſt proper for his purpoſe; and indeed I have been told, that thoſe from which he derived the moſt benefit, were from Lincolnſhire. It hath been already noticed, that, fifty or ſixty years ago, the Lincolnſhire ſheep were infinitely better than for ſeveral years afterwards, previous to their being croſſed with Bakewell's ſelection. The cauſe of their falling off was this:—An advance took place in the price of wool, which led the Lincolnſhire breeders to prefer *wool*, *ſize*, and *bone*, to that propenſity to fatten, which was the characteriſtic of the breed, and is certainly the firſt quality in all animals intended for the ſhambles. The ſame cauſe has, of late, operated, in many diſtricts, in the ſame manner; and it is not to be much wondered at; as mankind are very apt to purſue a preſent advantage, without adverting to the future loſs. *

It

* The attentive breeders of ſheep find, from repeated trials, that they cannot unite *heavy fleeces*, *much bone*, and a *diſpoſition to fatten*. It remains then to be conſidered, which are the moſt valuable.

It is not at preſent eaſy to aſcertain, whence Mr Bakewell obtained tups for croſſing his breed; but it is certain, that, in a very ſhort time, he produced, at the different fairs and markets, (as was then cuſtomary), animals of this deſcription, far ſuperior to thoſe exhibited by any other breeder. He has been often heard to ſay, that the firſt three tups he ever let did not bring him 20s. a piece. What a ſmall beginning this, for the very man who afterwards made above a thouſand guineas yearly by one ſheep, and taught us to raiſe two pounds of mutton, where only one could be raiſed before! The *form*, *fine proportions*, and *beautiful looks* of this moſt valuable breed, and, above all, their uncommon tendency to get fat, are circumſtances ſo well known to every one verſant in the breeding line, that it is unneceſſary to ſay more on the ſubject. Thoſe who wiſh to inveſtigate their merits more fully, may conſult Mr Culley's Treatiſe on Live Stock.

I have already obſerved, that the Meſſrs Culleys entered upon Fenton farm about the year 1767. Some years prior to their fixing in Glendale Ward, they had let a few tups in Northumberland. Mr Thompſon, late of Chillingham Barns, then of Eaſt Lilburn, father to the preſent Mr Robert Thompſon, was one of thoſe who firſt hired tups of them, and continued a conſtant cuſtomer for ſeveral years. Meſſrs Cleaver and Kendal, a conſiderable time after the Culleys had ſettled in Northumberland, brought a quantity of tups from the edge of the Yorkſhire Wolds, to Morpeth, for the purpoſe of ſelling or letting. They were of the coarſe Lincolnſhire breed. *Large heads*, *great bones*, and a vaſt deal of curled ſhaggy wool, were the diſtinguiſhing characteriſtics of theſe tups.* Novelty, however, or the benefit expected to ariſe from ſuch a complete *croſs*, induced great numbers, (amongſt the reſt, that zealous and ſpirited breeder Mr Thompſon), to try this new kind of ſheep. Indeed, the rage for theſe novel animals was ſo great, that the Culleys did not let tups that ſeaſon to the amount of 50l. Sterling. Mr Thompſon, however, ſoon found his miſtake; for, though he and a Mr Marſhall took a tup of Meſſrs Cleaver and Kendal, for two years, he did not uſe him the ſecond ſeaſon; on the contrary, he declared he would get rid of the kind as faſt as he could.

* I have been told, that notwithſtanding theſe Yorkſhire tups were ſhewn very lean, and the Culleys, on the ſame day, planted a pen of very fat ones at Morpeth, yet they could not let or ſell a ſingle tup, while all the Yorkſhire ones were ſoon let or ſold. So much for novelty, new faſhions, or what you pleaſe to call it!

Whether this ſaying of Mr Thompſon, or what elſe was the cauſe, it is not eaſy to find out, at this diſtance of time; but the fact is, that, though theſe gentlemen came to Northumberland next ſeaſon, in great hopes and expectation of doing more buſineſs than they did the year before, they diſpoſed of but few very tups at Morpeth; and, after hawking the remainder from place to place, ſold the laſt ten (or ſuch like number) at St Ninians fair, for ſome two or three guineas a piece. This not only finiſhed their career in Northumberland, but was the real mean of ſtamping the value, and eſtabliſhing the merit of the Bakewell blood againſt all oppoſition. The Culleys had now all the trade, and certainly thereby benefited not only themſelves, but the country at large. It may be proper to notice, that, at this time, there was a ſet of leading breeders, in different parts of the county, who, either from *pride* or *obſtinacy*, would not allow merit to the Bakewell blood, and, for a number of years, threw cold water on this valuable breed. Nay, they were weak enough to ſay, when they found that the Culleys ſhewed their ſhearings or dinmonds, at Morpeth, year after year, in better condition than any others preſented, that this was not owing to the nature of the breed, but to ſome art or ſecret in feeding, unknown to other people, which they, the Culleys, were in poſſeſſion of. Thus would they allow merit to the breeder, but not to the ſheep. A Mr Lamb, however, who at that time was agent to the late Sir Thomas Haggerſtone, of Haggerſtone, and rented ſome of his capital grazing ground, aſſerted one day in the public market, 'that this new breed muſt be of a more feeding nature than any other; otherwiſe, it was impoſſible that the Culleys, or any man whatever, could ſhew fatter ſheep than he could: but that, though he had much better land than them, a breed of ſheep hitherto accounted one of the beſt in the county, and his paſtures lightly ſtocked, yet he could not compete, in point of fatneſs, with thoſe of the new Leiceſter breed.' Mr Lamb being an active clever man, whoſe opinion was much valued by the neighbourhood, this change of ſentiment with him had a wonderful effect. He hired ſome tups about this time from the Culleys, which confirmed his ideas as to the propriety of the change; but the matter which had the greateſt effect was, that Mr Taylor, one of the moſt extenſive breeders and graziers in the county, and whoſe abilities were generally reſpected, hired tups both from the Meſſrs Culleys, and Mr Thompſon, who had now commenced tup-letter, which occaſioned this breed to be generally diſſeminated throughout the whole county, and all the low part of Berwickſhire, to the Lammermuir Hills. Some purſe-proud obſtinate breeders continued,

tinued, however, in the old beaten path, at leaſt they pretended to do ſo. But their oppoſition did little harm; as it was generally known, that, notwithſtanding they would not hire tups from the profeſſed letters of the new Leiceſters, yet, that they eagerly bought tups, with a daſh of the blood, from others, wherever they could procure them. It may be remarked, that Mr Gregſon, of Lawlynn, who was at one time extremely averſe to the Leiceſters, has now ſeen his error, and hires tups every year from the Meſſrs Culleys, at very genteel prices for a grazier. A miſtaken idea, which long prevailed, contributed to prevent a general improvement. This was owing to many breeders ſuppoſing that one croſs was ſufficient to make a complete breed, not conſidering, that, if the kind is good, you cannot have too much of it. There is no doubt but that the firſt croſs has always the greateſt effect; but it requires the greateſt perſeverance to prevent even a partial degeneracy. It is now well underſtood, that no breed can be brought to any conſiderable degree of perfection, without ſeveral croſſes or intermixtures with the moſt valuable blood. At this time, indeed, it is comparatively an eaſy matter to get into a good breed, with what it was twenty years ago; becauſe the Bakewell blood is in general circulation. Ewes of a pretty good form may now be purchaſed at all the fairs, or by riding the country; and, if a good tup is hired from one of the leading breeders, you get at once into a real feeding kind, and at no great expence; but, if determined to commence tup-letter, a perſon muſt go to the firſt-rate breeders, and purchaſe their caſt ewes, at ſuch a price as they will ſell them at; for they will not part with their beſt ſort at any price which it would be worth the while of a beginner to give.

Before finiſhing this part of the ſubject, it may be proper to obſerve, that Mr William Charge, late of Cleuſley, on the Yorkſhire ſide of the Tees, brought tups, of the Diſhley or new Leiceſter breed, to Morpeth, before the Culleys brought any, and ſold them there at no great prices. Mr Henry Grey, of Bamburgh, and ſeveral others, who were in poſſeſſion of the large improved breed of Bamburghſhire, bought ſome of theſe tups, and were wonderfully benefited by them; but, for want of knowledge in not continuing that blood, and croſſing them again with the large Tees-water breed, they ſoon loſt the benefit of the firſt valuable mixture. *

It

* A younger brother of Mr William Charge's had, it ſeems, got acquainted with Mr Bakewell, at an earlier period than the Culleys, and by that means firſt introduced the Diſhley blood into the Tees ſide; but that

It may alſo be obſerved, that the ſuperiority of the Diſhley blood was early found out by all the ſheep-breeders who were open to conviction, both in Northumberland and the Scotiſh Borders; that the breed ſpread in thoſe diſtricts, with a rapidity which has not perhaps been equalled in any other part of the iſland; and does high credit to the candour of the Border breeders in general. They ſoon diſcovered that they clipped more wool, and of a better quality, from ſheep of this breed, than from the mugs; though, indeed, they are not remarkable in this reſpect, when compared with the Tees-water, and more particularly with the old Lincolnſhire breed, which laſt excels every other kind we know of, in quantity of wool *. The diſtinguiſhing quality of the Diſhley breed, and that which gives it the preference to all others in the iſland, is a wonderful propenſity to fatten in a ſhort time. Sheep of this kind, are found fatter at the age of two years, than thoſe of the Lincolnſhire, or any other breed, when three years old. Nay, many of them are ſold at the end of fifteen months, at from 45s. to 60s. *per* head, and are conſidered by moſt people as then fat enough for uſe. The keelmen, pitmen, and all ſuch hard-working people, however, like better to have them a year older; and they are never too fat for people of theſe deſcriptions.

The period ſeems to be at no great diſtance, when all, or the greateſt part of the champaign diſtricts in the iſland will be ſtocked with this invaluable breed. The ſouthern parts of England, however, where the farmers are weak enough to perſuade themſelves that good grain crops cannot be raiſed without *ſheep-folding*, will be the longeſt in adopting the breed, or rather the lateſt in ſeeing their error. All, or moſt of the midland, and the whole of the northern parts, are covered with theſe ſheep, or at leaſt with an intermixture of the blood. Croſſes have alſo been tried in the Hill diſtricts, and the breed ſeems to be

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that young man having died, his elder brother Mr William, by croſſing the Diſhley blood again with the large Tees-water breed, loſt, or very much contaminated, the valuable kind which his younger brother had been at the pains and expence of introducing. This gave the Culleys a decided advantage; as they had purſued the Diſhley blood, with zeal and energy, from their firſt ſtarting.

* We are well informed, that many of the Lincolnſhire breeders uſed formerly to clip 12 pounds per fleece, or more, over their whole flocks of ewe, wedder, and hog; an amazing quantity indeed, and may perhaps tempt ſome, at this time, to aim at an increaſe of the quantity of this article, which at preſent ſells from 12d. to 14d. per lib, and upwards.

be faſt creeping up the edge of the mountains. In Lincolnſhire, it was longer of being adopted than in any other of the midland or northern counties; and probably for the following reaſon. In no part of England, that we are acquainted with, are there ſo many rich extenſive marſhes, and other good lands, as in Lincolnſhire, Romney marſh excepted, which, comparatively ſpeaking, is but a ſpot. As ſuch rich lands force the wool to an extraordinary *length*, *ſtrength*, and *weight*; it is reaſonable to ſuppoſe, that this conſideration at firſt induced the breeders to purſue *wool* and *ſize* particularly, and to ſtick ſo the practice longer than their brethren in the other long-wooled ſheep-breeding diſtricts *. It is ſuppoſed, however, that a ſingle ſheep of the pure old Lincolnſhire ſtock, is not now to be met with, except, perhaps, beyond the Waſh, or in the Seven towns of Norfolk; and that one of the *pure uncontaminated* old Teeſe-water blood is no where to be found.

To conclude, it is now admitted on all hands, that the Diſhley ſheep pay more for what they eat, than thoſe of any other kind we know of. I think Mr G. Culley, in his treatiſe on live ſtock, ſays, that in his opinion, they pay 4d. *per* week, while moſt others pay only 3d., or in that proportion. It is to be regretted that the idea of experimental farms was not carried into execution, as, in that caſe, numerous experiments would undoubtedly have been tried, in ſuch a manner as to throw more light upon a ſubject of ſo much importance, and would, no doubt, in time, have produced deciſive proofs. Whether the Board of Agriculture, or any other inſtitution, will, at a future period, revive theſe matters, is perhaps more to be wiſhed for, than expected; but, without deciſive experiments, we muſt remain as we are, each attached to his own opinion. The ſpreading of theſe ſheep, however, in all directions, is a ſtrong preſumptive proof of their high merit, and clearly ſhews that they are preferred to all others in the champaign parts of the iſland. They have long occupied the beſt lands of Berwickſhire, and are now bred, in general, to the very extent of the beautiful vale of Tiviotdale. Several tups have been let into the Lothians, and

* Mr George Culley, in his Treatiſe on Live Stock, ſays, that, in the neighbourhood of Boſton, in Lincolnſhire, many of the marſhes keep from twelve to ſixteen ſheep, and half a beaſt, per acre: that, before Long-Sutton common was encloſed, it was always calculated that not fewer than ten or twelve ſheep were kept upon each acre, beſides cattle and young horſes in the ſummer months; and that the beſt and fatteſt hogs were always depaſtured there, as lean ones could not bear the richneſs of the graſs.

and acroſs the Frith of Forth into Perthſhire, &c. &c. Trials are alſo making of them in Cumberland, and on the Solway Frith; and it is not doubted, but that they will find their way gradually into the remoter parts of Scotland, wherever the ground will ſuit them.

Thus have I endeavoured to give the beſt account which I have been able to collect, of the progreſſive improvements in the breed of Northumberland ſheep; and if you think the attempt worthy of a place in your Magazine, it is much at your ſervice. I remain your conſtant reader,

A NORTHUMBERLAND FARMER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Improvement of Holm Land in Cumberland.

SIR,

A great improvement being lately made on a tract of fine holm land in our neighbourhood, by cutting a new water-courſe, and raiſing a ſtrong bulwark, to turn the river out of the old channel, an account of it cannot be unacceptable to your numerous readers; and, though not an undertaking of ſuch magnitude as the drainage of Loch Leuchars, which you have given an account of in your November Number, yet is as much within the ſphere of the practical farmer; eſpecially as many fine tracts of holm land are often of little value, for want of ſuch improvement.

The holm alluded to, is in the north-eaſt diſtrict of Cumberland, a few miles from the ſource of the river Line, (a river that diſcharges itſelf into the Solway Frith near Longtown); and, owing to the rapidity of the river, and the torrents from the mountains, it was rendered almoſt uſeleſs; the river having formed itſelf a ſerpentine courſe, (as in Fig. 1. of the ſketch annexed), tearing its loamy banks, and inundating nearly 8 or 10 acres of fine land every flood. About ſix years ſince, Mr Nixon, the proprietor, ſet about its improvement, which he completely effected, by cutting a ſtraight courſe down the north ſide of the holm, thereby ſhortening its courſe from 800 to 500 yards. But the greateſt difficulty was, the making a bank to turn the river into the new cut, as it was neceſſary to make it acroſs a rapid ſtream, where the river was about 25 yards broad, with a looſe gravelly bottom. Mr Nixon preferred a bank of ſtones, backed with gravel. He got large ſtones from a quarry at a ſhort diſtance, and begun the bank, by laying the foundation ſtones about a foot and a half ſunk in the gravel, which was carried up (rather ſloping it a little) to the height of 7 feet, not like a double

double wall, but only as a kind of rough facing, without uſing any lime, and ſupporting the back of the ſtones with gravel from the old water-courſe, beginning the mound of gravel about 4½ yards, or near 5 yards, wide at bottom, and ſloping it gradually to the top, and covering it with green turf, to give it a ſward; ſecuring it in front with a row of ſtrong oak ſtakes, drove near 3 feet into the gravel, and about 3 feet diſtant from the ſtone facing, and filled with ſtones in front of the bank. This was thought ſufficient to prevent its undermining; but the firſt high flood tore up the ſtakes, undermined the ſtone facing, and, in a few minutes, laid the bank in ruins. Mr Nixon immediately began a new bank, on the ſame plan as the firſt; but, inſtead of 25 yards in length, was obliged to make it above 50 yards, owing to the flood tearing the upper part of the new cut, and getting into the old channel. When it was finiſhed, inſtead of ſtakes, as before, it was ſecured by a kind of pavement of large maſſy ſtones, extending about 5 yards along the front of the bank. The moſt rapid flood cannot now undermine the bank, its fury being ſpent, by running ſmoothly on the top of the pavement, as if on a ſolid rock. The bank and pavement have ſtood more than five years, and braved the fury of the greateſt floods. I am certain a bank of this conſtruction will turn the largeſt river in Britain, if raiſed above high flood-mark, as this is. The river, now having a ſtraight deep bed, never inundates the holm as formerly; ſo it can be cropped with ſafety, beſides the gaining a conſiderable quantity of land, by ſhortening its ſerpentine courſe. The expence of the whole was not extraordinary high; as the new cut, in ſome places, fell into the bounds of the old water-courſe, (ſee fig. 1.); and the cuts, though not wide at firſt, were ſoon made large enough by the floods; no wood being to purchaſe for the ſtrong bank, and the ſtones and gravel being near at hand. The preſent farmer, Mr Henry Ewart, is at this time making great improvement on the holm, levelling the banks of the old courſe, taking ſoil to the gravelly places, &c. I have been particular in this detail; as I have ſeen ſome unſucceſsful attempts of the kind. An expenſive cut at Lauriеſton, pariſh of Caſtletown, county of Roxburgh, failed, merely for want of a proper bank at its inlet; alſo, a ſhort cut, with a bank croſs the river Irthin, in Cumberland, done at a great expence, by the county, to prevent the water breaking a new courſe at the end of a bridge, is now faſt going to ruin, though the bank was made with ſtakes armed with iron, and drove ſome inches into a ſolid rock. I am of opinion, if theſe banks had been done upon the ſame principles as Mr Nixon's, they would have ſtood for ages. I am yours, &c. J. D.

Deſcription

Deſcription of the Sketch annexed.

Fig. 1. B B, is the new cut; D D D D, the old bed of the river; and C, the bank which turns the river into the new cut.

Fig. 2. a ſection of the bank. A, the cauſeway before the bank; B, the ſtone facing which ſuſtains the looſe gravel C; D, a coating of ſods or green turf.

Fig. 3. A plan of the bank; the ſpace E E repreſents the old courſe of the river; F, that part of one ſide of the entry into the old bed, which was carried away when the firſt conſtructed bank was ruined by the flood; G, the bank itſelf; and H, the cauſeway before it.

Fig. 1.

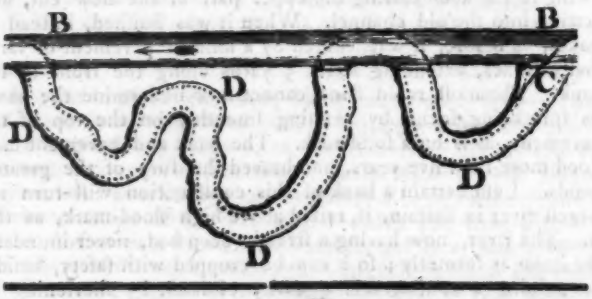


Fig. 2.

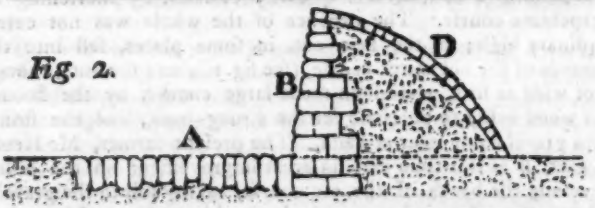
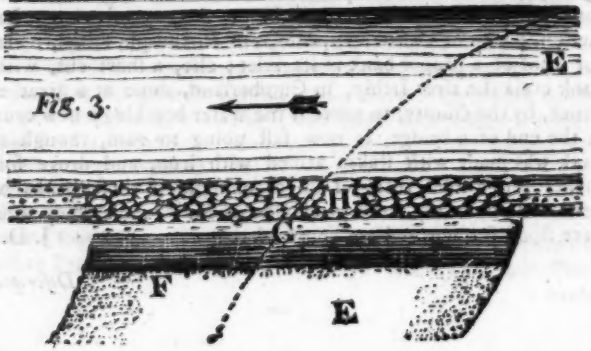


Fig. 3.



TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Highland Society Vindicated.

SIR,

THE extenſive circulation of your uſeful Work, whilſt it ſpreads wide and important information, relative to the beſt intereſts of our country, may occaſionally be the means of diſſeminating error. It becomes, therefore, the duty of your readers to enable you to correct any miſtake, in point of fact, which, through inadvertency or otherwiſe, may have crept into your Magazine. In this view, I think it right to inform you, that Mr Dempſter, in the very excellent letter to you, publiſhed in your laſt Number, is inaccurate, when he ſtates, that the important ſubject of Emigration has eſcaped the attention of the Highland Society of Scotland. Had this been the caſe, that Society would indeed have had little claim to the patronage and ſupport it expects from the public. But, ſo far from having overlooked a circumſtance ſo intereſting to the feelings of their countrymen, and ſo connected with the well-being of the State, as the emigrations from the Highlands of Scotland, the truth is, that the ſubject was early taken up, and carefully inveſtigated. Nor were the labours of the Society in vain. The Report tranſmitted to Government by the Directors, at the deſire of the Society, was laid before the Committee of the Houſe of Commons, and is expreſsly ſtated in their Report as forming one of the principal grounds on which the reſolutions of that Committee were founded.

I have no doubt, Sir, but your enlightened and worthy correſpondent Mr Dempſter, who adds by his name much reſpectability to the liſt of members of the Highland Society, will be happy to find that he has been miſtaken in this point. Nay, may I not hope, that he, and my countrymen in general, will be diſpoſed to give the Society more of their confidence, and believe, that, even when the public know it not, the Society are anxiouſly watching over the intereſts of their country, preſerving that ſilence, on queſtions of delicate diſcuſſion, which evinces a greater deſire to do good, than to receive the praiſe of doing it. I am, Sir, your moſt obedient ſervant,

Edinburgh, 9. June 1803. C.

BRANCH

BRANCH II.

REVIEW OF AGRICULTURAL PUBLICATIONS.

General View of the Agriculture of the Counties of Roxburgh and Selkirk, with Obſervations on the Means of their Improvement. Drawn up, for the conſideration of the Board of Agriculture, by Robert Douglas, D. D. Miniſter of Galaſhiels. 8vo. 378 *pp. Publiſhed* 1798.

We lament that this intereſting work has ſo long eſcaped our notice; as, from the Reverend author's well known accuracy, and talent for extenſive, minute, and diſcriminating inveſtigation, we might well have expected much uſeful information from the reſult of his labours. Thoſe who, like us, indulged ſuch expectations, will not be diſappointed. Indeed, we are extremely happy to find, that the buſineſs of reporting the ſtate of ſo important a Scots county was committed to his management: For though, in conſequence of the greater proportion of improveable and improved ſoil which Berwickſhire contains, that county is by ſome people conſidered as the pattern county of Scotland; yet, there is every reaſon to believe, that, in the introduction and the general adoption of improved huſbandry, the county of Roxburgh had taken the lead, of which the following is an inſtance.

In page 90th, we are informed, that, though fifty years ago, attempts were made to raiſe turnips, the cultivation of that root was relinquiſhed, from the ignorance of both maſters and ſervants as to the proper mode of managing it, and the impoſſibility of preſerving from depredation, a production then ſo rare and curious; and that the practice was not reſumed, till again introduced, in full perfection of management, about the year 1755, by Mr William Dawſon, upon his return from England, where he had reſided ſeveral years, for the purpoſe of agricultural inſtruction. The farm at that time in his poſſeſſion, not being of a ſoil favourable to this crop, he ſuſpended for a while his operations. About the year 1759, he entered into poſſeſſion of the farm of Frogden, of a ſoil more propitious; when he immediately reſumed the cultivation of turnip, with ſuch ſpirit, as to have from 80 to 100 acres annually under this crop. The celerity with which his cattle fattened, with the large command

mand of dung obtained, ſoon recommended his ſyſtem of practice to the imitation of thoſe in his neighbourhood. 'But ſo ſlow has been its progreſs (ſays our author), that, during twenty years, it ſcarcely ſpread as many miles; and at this moment, after the experience of thirty-ſix years, it only begins to be practiſed in ſome diſtant parts of the county.' In a note (p. 69), the introduction, into Scotland, of the practice of ploughing with two horſes abreaſt, without a driver, ſeems to be attributed to Mr Dawſon. 'When Mr Dawſon at Frogden firſt introduced the drill-huſbandry, he had great difficulty to teach a ploughman to manage two horſes without a driver, and to make ſtraight furrows. Mr James MacDougal, now tenant in the pariſh of Linton in Tweeddale, was the firſt who learned to plough in this manner; *and from him the practice ſpread through this county, and the neighbouring ones of Northumberland, Berwickſhire, Eaſt-Lothian, and Tweeddale.*'

The early introduction, and conſequent long continued practice of the improved huſbandry, in this diſtrict, together with our perfect dependence upon the author's accuracy in the inveſtigation of facts, in ſo far as they are capable of being aſcertained, will, we hope, juſtify us, in giving as large an analyſis of the contents of this ſurvey as our limits will permit.

Both counties are deſtitute of coal, excepting a detached corner of Roxburgh, named Liddeſdale, inacceſſible for want of roads: of courſe, their ſituation is unfavourable to manufactures. The chief manufacture is one of cloth at Galaſhiels, ſituated upon that extremity of the two counties which is moſt acceſſible to the coal of Mid-Lothian. There, manufacture has ſo much increaſed, that, from 722 ſtones of wool in 1775, the quantity manufactured had increaſed to 2916 ſtones in 1790. We believe the quantity has rapidly increaſed ſince the date of the report; ſubſequent to which, we underſtand that the manufacturers have obtained the accommodation of the eſtabliſhment of a branch of the Leith Bank at Galaſhiels. But, though this diſtrict may be conſidered as agricultural, much more than manufacturing, the value of lands, we find, has rapidly increaſed, by conſequence of agricultural improvement alone. Inſtances are given (p. 16.) of great advances in the purchaſe price of landed eſtates, ſold and reſold at no diſtant periods; of one in particular, ſold ſo late as 1778, which fetched double the purchaſe-money upon being reſold in 1794.

The general dip of both counties is to the eaſt; the waters falling into the river Tweed, being diſcharged into the Eaſtern ſea; but in the detached corner of Roxburgh, where there is coal, they run weſtward, and are carried into the Weſt-

ern ocean. Selkirk lies along the weſt ſide of Roxburgh, nearer the ſources of the waters, and in a higher elevation.

SELKIRK.

The loweſt arable land in this county will be about 300 feet of elevation above ſea level. Many habitations are ſituated in the elevation of from 600 to 1000 feet. The heights of various mountains are mentioned, extending from 2000 to 2370 feet above ſea level. The harveſt is from a fortnight to three weeks later than in the lower parts of Roxburgh; though partial inſtances occur of greater earlineſs, occaſioned by reverberation of the ſun's rays from the mountains, in particular ſituations.

This county contains about 160,000 acres Engliſh of ſurface, of which about 8800 are arable, and generally of a light kindly turnip ſoil. The remaining 151,200 are ſheep paſture; moſtly green, a ſmall part of it being covered with heath. The real rent of Selkirk (eſtimating the paſture at 2s. 9d. per acre, and the arable at 10s., and making an allowance for wood, &c.) is ſtated at 28,450l.

The one third of the ſheep kept are of the ſhort-bodied, black-faced, coarſe-wooled kinds; which our author juſtly celebrates, as highly adapted for coarſer paſture, from their hardineſs and ſuperior kindlineſs in feeding. The other two thirds are of a ſpecies finer wooled, procured from the black-faced, which had been the original occupants, by repeated croſſings with Cheviot rams. This kind our author conſiders as very far from equal to the true Cheviot breed. This mode of changing the breed is undoubtedly the moſt cautious and ſafe; yet our author ſpecifies ſome bold attempts made, of introducing a whole ſtock at once from Cheviot, which had apparently ſucceeded. Upon a calculation, the *data* of which were furniſhed by ſome of the moſt intelligent of the farmers, ſheep paſture may be divided, according to quality, into nearly three equal parts; of which a portion of 50,000 acres will maintain at the rate of nearly one ſheep upon two acres; another portion of 49,000, at the rate of four ſheep to five acres; and another of 49,000, at the rate of one ſheep to one acre;—our author computes the number of ſheep in this county at 118,000: of which the annual produce, diſpoſable for internal conſumpt, or for market, he rates at 9800 ewes, or other old ſheep, and 56,200 lambs.

The ſtock of black cattle is computed at 2200; of which the diſpoſable produce, moſtly ſold lean, is eſtimated at a ſixth part, or 360.

The ſmallneſs of the proportion of arable land precludes the poſſibility of fattening any great proportion of ſheep, upon improved

improved paſture, or winter green crops; and probably the whole arable might, with propriety, be made ſubſervient to the mere purpoſe of ſecuring the holding ſtock from deficiency of food in the winter ſeaſon. It is conſiſtent with our own knowledge, that ſome farmers propoſe keeping their whole arable in alternate rotation of oats and turnip; to ſtore up their turnip, and ſupport their holding ſtock with them, in winter ſtorms, as preferable to hay. *

No limeſtone has ever been diſcovered in this county. It enjoys, however, the advantage of ſhell-marl, as a mean of improvement.

The author ſtates ſome curious facts, and ingenious ſuggeſtions, as to the origin of this ſpecies of manure, (p. 11. & 232, &c.) Shell-marl is pronounced to be a collection of a ſpecies of freſh-water ſnails, which, in the rudiments of their organization, adhere to ſtones in various rills of water; the animal and its ſhell both gradually attaining to their perfect ſtate of formation. When perfected, the ſhell, containing its animal, is detached from the ſtone, and they are carried by the rills to the moſſes into which theſe diſcharge themſelves; where, the water becoming ſtagnant, the ſhells ſubſide, and gradually accumulate into thick beds or *ſtrata* of marl. The marl may be therefore conſidered as a compound of the calcareous matter of the ſhells, mixed with the animal matter of its formerly living inhabitant, together with alluvial mud, and the moſſy matter of the aquatic plants, ſucceſſively growing and decaying, in the ſtagnant water. Some ingenious queries are ſuggeſted. Is the ſhell formed from an elective attraction betwixt the body of the animal and calcareous matter previouſly ſubſiſting in the water of the rills?—But there is no veſtige of limeſtone near the places where the marl is found, to ſup-

* A young farmer from Selkirkſhire was lately with us, who poſſeſſes a wild farm in that county. He ſtated, that his proportion of arable to ſheep walks was inconſiderable; that he raiſed few oats, except what was neceſſary for ſupporting his horſes, and paying livery meal to his herds. A plan of improvement, very ſuitable to farms ſo circumſtanced, was propoſed by him, viz. to crop the arable land with oats and turnip alternately. A pound weight of hay *per diem* being the allowance given to the ſheep during a winter ſtorm, he ſuppoſed that a turnip of 6 lib. would be better than 1 lib. of hay; and as it is a very moderate computation to have turnip of ſix pound weight on a ſquare yard, or 5760 times that quantity on an acre; of courſe it might be inferred, that an acre of turnips would go much farther in ſupporting ſheep, than an acre of hay. Doubts, however, may be entertained, whether the rotation would anſwer, if perſevered in for any conſiderable number of years; but if freſh ground was conſtantly brought in, the advantage would be great.

ply calcareous matter to the water. Or is it a proceſs of tranſmutation of ſome diſſimilar ſubſtance, effected by the animal powers of the ſnail?—But ſtones are found, without an animal adhering to them, and yet enveloped with gelatinous or cruſtaceous matter, ſimilar to the ſhell of the animal in its various ſtages of formation and growth. Is the compoſing matter of the ſhell, then, formed in the water, in readineſs to attach itſelf, indiſcriminately, either to the body of the animal or to the ſtones? or is what is attached to the ſtones to be conſidered as a ſuperplus formed by animal action, above what is neceſſary to the encruſtation of the animal?

Roxburgh.

This Border county contains 430,080 acres Engliſh; of which three fifths, or 288,098 is ſheep paſture; and two fifths, or 172,032 are arable. Some hills, in the mountainous parts, extend to 2000 feet above ſea level; the loweſt of the arable exceeds not 90 feet of elevation. Harveſt, in the loweſt parts, has been known to commence in the end of July, though ſeldom general till the middle of Auguſt. About two thirds of the arable land is of light dry ſoil; the other third of heavy clay, of which a conſiderable part is cold, wet, ſhallow, and unfertile. The dry light ſoil is generally found in the vallies, along the beds of the rivers and rivulets; the heavy is found in a higher elevation. Moſt of the paſture land is green, and only a very ſmall proportion covered with heath.

The real rent of Roxburgh (eſtimating the paſture at 3s. per acre, and the arable at 15s.) is rated at 171,941l.

Sheep are the ſtaple produce of this county, as well as of Selkirk. From a medium calculation of the ſheep paſture (at the rate of allotment of from $1\frac{1}{4}$ to $1\frac{1}{2}$ acres to one ſheep), the quantity of ſheep kept are eſtimated at 200,000; the diſpoſable produce of which, for foreign or home conſumption, are eſtimated at 56,000 old ſheep, and 14,000 lambs, and 25,000 ſtones of wool.

There are five or ſix ſmall flocks of the Diſhley breed, kept in rich incloſures, in the arable diſtrict. But the kind generally prevalent is the Cheviot breed: theſe, 40 years ago, would appear to have been improved by an importation of rams from Lincolnſhire, before the breed of that county had degenerated. Various croſſes of the native breed are attempted, to improve, ſtill farther, the native fineneſs of their wool, and to remedy their defect of ſhape, the low and thin fore-quarters: this is attempted by rams of the South-Down or Hereford breeds, or thoſe with a daſh of Spaniſh blood in them.

Much

Much time, as well as care and attention, are neceſſary to carry theſe experiments to a concluſive reſult; but we are happy to be informed, that they are carried on with ſpirit.

More of black cattle, and perhaps of ſheep, would ſeem to be bought in and fattened, on the improved paſtures and winter crops of the arable parts of the county, than what can be afforded from the diſpoſable produce of the paſture diſtrict.

The proportions of the different breeds of ſheep, which an acre of improved paſture will fatten, are ſtated as follows:—Of the Diſhley, three ewes with four lambs, *i. e.* one of the three ewes being ſuppoſed, on average, to have twins—of the Cheviot, four ewes with their lambs—of the black-faced five ewes, with their lambs. Theſe will yield, reſpectively, above the price at which they were bought in, Diſhley, 2l. 15s. 6d. *per* acre, Cheviot, 2l. 2s., Black-faced, 1l. 17s. 6d. The author, however, obſerves, that the whole profit of the black-faced does not appear in this ſtatement; inaſmuch as, from their more kindly feeding, they can be earlier ſold, and the graſs cleared for the reception of a new ſtock. A certain proportion of the black-faced breed is generally to be found in gentlemens incloſures, for family uſe; being preferred for the delicacy of their mutton.

After conſiderable diſcuſſion as to the mode of changing breeds—whether, by ſelecting merely the beſt of the natives to breed from, in which there is no riſk—or by croſſing merely with foreign rams, which is ſafe, as the progeny are habituated to the ſituation from infancy—or introducing an entire foreign ſtock, with diſcrepant habits, which is moſt hazardous; our author ſeems not to have ſeen reaſon to adopt any general concluſion, farther than 'that very much may be done by judicious croſſes, and that a good deal alſo depends on ſoil and climate. Whether any alterations in theſe, produced by drains or plantations, will prove more favourable to one breed than to others, or prevent or leſſen the tendency of particular breeds to degenerate in certain ſituations, remains yet to be aſcertained.' (p. 173).

About 2000 calves may be fattened in this county, annually, for Kelſo and Jedburgh markets; this being a more profitable mode of diſpoſing of milk, than the making of cheeſe and butter: And about 6000 black cattle may be fattened on graſs, and an equal number upon turnips, for theſe and other markets. The cattle, ſtall fed upon turnips, are ſo bound to their ſtalls, as to hinder them from raiſing their heads above the level of their bodies, to prevent their choaking; in this way, the turnip cannot be forced into the throat, in deſcending, by its own weight,

but merely by the force applied to it by the muſcles of deglutition. They are often faſtened by the horns, which has the further effect of preventing them from licking their own bodies; which, both poiſons the ſtomach by the hairs ſwallowed, and bruiſes and diſcolours (it is ſaid) the fleſh of the part licked.

The rate of manuring with dung being at about 20 to 24 cart loads of 15 or 16 cwt. each *per* acre; and the produce of dung, yielded from an acre of turnips conſumed by ſtall-fed cattle, upon an average of all the turnip crops, good and bad, being about 10 ſuch cart loads; every two acres of turnip ſhould yield dung for one acre. Twenty-four tons of turnip are ſtated as a large average produce for an acre; and 2¼ cwt. as ſufficient *per diem* for a moderate ſized bullock that may feed to 45 ſtones Dutch weight. (p. 94).

The rate of fattening, in black cattle ſtall fed or turnip, is ſtated at an increaſe of one fourth of their weight in four or five months. (p. 147).

More command of dung is obtained by conſuming the turnip in the houſe, than upon the field; nevertheleſs, from the advantage of leſs labour, it is becoming more general to conſume them on the field, by ſheep confined in hurdles; and a commerce is carried on betwixt the farmers of the paſturing and arable diſtricts, the former often purchaſing fields from the latter, to be ſo conſumed, in fattening their diſpoſable produce, or keeping on their breeding or holding ſtock. Leſt, however, the ſuperabundant dunging, thus given to the turnip field, ſhould render the ſubſequent crop too luxuriant, whilſt the other fields ſhould ſuffer by the obſtruction, it is coming into practice to pull a part of the rows of turnips for ſtall-feeding, and alternately to leave other rows ſtanding, to be conſumed upon the field.

Marl was firſt applied, as a manure, in Roxburgh, by Lord Minto, as a proprietor, and by Mr Dawſon, as a farmer, about the year 1753; the former uſing his own ſhell marl, which was not then to be had for ſale, and the latter clay marl; the former at the rate of 30 carts, the latter at the rate of 330 carts *per* acre. So ſoon as roads of communication were opened, lime immediately ſuperſeded the uſe of clay marl (of which ſuch enormous quantities needed to be applied); though the county yields no lime, and the diſtance to it extends from 16 to 30 miles. Since the year 1772, ſhell marl has been expoſed to public ſale; and ſince it was thus procurable by farmers at large, its application is becoming more general. From 20 to 25 carts, ſuch as already ſpecified, are given to the acre, of this ſhell marl, in a dry ſtate: it loſes, in drying, a fifth of its bulk wet

from

from the pit. The effects of marl are obſerved to be, not immediate, but laſting: crops from marl are a fortnight later in ripening than thoſe from lime, and the grain of leſs weight by 1-10th, in equal meaſure.

Lime is rather preferred even to ſhell marl, its quicker operation ſuiting better with the ſhort tenure of a tenant's poſſeſſion. It is applied at the rate of ſix carts to the acre, in light ſoils; and of eight, ten, or ſometimes ſixteen, in clay ſoils.

Fallow, with marl or lime, either with or without dung; and either complete, or with a green crop, is the fundamental dreſſing, depended upon, to ſecure the ſubſequent crops, in the courſe of rotation, upon the arable lands. Entire fallow is uſed upon clay, which is a ſoil unfit for turnip crops. The moſt approved ſucceſſion by which this is followed, is—1ſt, wheat; 2d, peas; 3d, barley, with graſſes; 4th, hay, cut, or ſometimes paſtured by ſheep; 5th, oats:—or by, 1ſt, wheat; 2d, peas; 3d, barley with clover; 4th, two or three years paſture; 5th, oats. We were rather ſurpriſed to find no mention of drilled beans in the rotations upon clay ſoil.

On light lands, turnip is uſed as the general fallow crop; followed by, 1ſt, barley with graſſes; 2d, hay; 3d, oats; 4th, peas; 5th, barley, with paſture graſſes; 6th, paſture for ſeveral years; 7th, oats:—or by, 1ſt, barley with graſſes; 2d, hay; 3d, two years paſture; 4th, oats. Theſe are ſome of the moſt approved rotations; though many others are practiſed. An extended rotation, from the original dreſſing, enables the farmer to go over the greater proportion of the land in his farm.

We are ſorry to find the Ruta-baga had begun to be leſs valued, as we know not of a vegetable better calculated to make winter and ſummer ſucculent feeding meet each other.

The average returns of grain *per* acre, are ſtated by the Roxburgh boll, which contains five firlots Linlithgow meaſure, and a trifle more, viz. wheat four bolls, barley four and a half, oats four and a fourth, peas two and three fourths. We conceive this to be a ſmall return; but preſume the ſeed is kept out, and the diſpoſable produce only given. The number of acres under oats are ſtated at 41,008, barley 16,404, wheat 9842, peas 6562.

The ſize of arable farms runs from 150 to 500 acres, and from 100l. to 400l. of rent. From 800 to 3000 acres is the general ſize of ſheep farms; but one farmer has often two or three of ſuch farms in his poſſeſſion.

Our author's ideas reſpecting tithes are very liberal for a clergyman, the generality of that profeſſion entertaining a hankering deſire after the fleſh pots of Egypt. He ſays,

' One or two clergymen have a right to ſome tithes, but have been in uſe, time immemorial, to accept a ſmall ſum in lieu of them. This is a loſs to them; but a material advantage both to the proprietors and tenants of the grounds, who are thereby freed from a vexatious obſtacle to uſeful improvements *.

That tithes are a vexatious obſtacle to improvements, cannot be queſtioned by any man who has ſtudied the ſubject. When thus decidedly condemned by a gentleman of diſcernment and information, one who may naturally be ſuppoſed not inimical to the ſyſtem, conviction muſt flaſh upon the mind of every one who has the public good at heart, and who is not diſpoſed to ſet individual advantage in oppoſition to national improvement.

The Roxburgh farmers would ſeem to conſtitute a very reſpectable claſs: ' Many of them have received a claſſical, and ſome a liberal education.' In regard to their manner of dealing, the author obſerves, ' they are likewiſe entitled to much praiſe for the plainneſs and good faith of their dealings. Bargains are not made with leſs chicane or higgling, or fulfilled with more honour, by the firſt houſes in the kingdom.' (p. 31. 33).

Two thirds, at leaſt, of the arable diſtrict, is encloſed; a meaſure indiſpenſable for appropriation to agricultural purpoſes, in a county partly arable, partly paſtoral.

We have been large in our analyſis of the *matter* of this Survey, though we pretend not to follow the author through his extenſive details; and we have left little room for extracts, as ſpecimens of his *manner*. We can only obſerve, that we believe his ſtyle to be ſo devoid of idiomatiſms of the Scotiſh language, and ſo much diveſted of all technic terms, that no Engliſhman will find it difficult to comprehend his ſenſe, nor will feel any expreſſion uncouth to his ear.

We ſhall juſt lay before our readers the author's judicious remarks on the beſt mode of forming roads; a ſubject, if not ſo immediately, at leaſt moſt eſſentially connected with agricultural improvement.

' In making both turnpike and croſs roads, too little attention was at firſt paid to avoid acclivities, and conduct them in the moſt level and neareſt direction. The gentlemen were inexperienced, unwilling to break into encloſures, or to injure the property of any individual; deſirous of ſtudying each other's conveniency, and, above all, anxious to obſerve

* Since writing the above, I learn that a clergyman has actually drawn, in 1796, the tithes of lamb, wool, *green* or new pulled lint, and natural hay, in kind, from one part of his pariſh, and has farmed the tithes of theſe articles in another part.

obſerve œconomy. Hence the line of former roads was followed as much as poſſible, to prevent both cauſe of offence and unneceſſary expence. A road, already partly done, could be completed at an eaſier rate, than a road wholly new. And proprietors had leſs cauſe to complain when an old road was widened, than when a new one was carried through their fields. There was alſo ſome ſaving in taking the advantage of bridges already built, inſtead of erecting others. On the ſame principle, the making of roads was committed to thoſe, who gave the loweſt eſtimate, and who were both ſparing of their materials, and unſkilful in laying them on. In a few years, there was a neceſſity, in ſome inſtances, to alter the direction, and in others to renew the roads. Theſe errors, however, have long ago been perceived and corrected. The later roads are made with an evident regard to eaſe, conveniency, and beauty; and are pleaſing indications of the judgment and good taſte of thoſe by whom they were planned. Yet not only here, but in the greateſt part of Scotland, the art of road-making is imperfectly underſtood; and perhaps the following hints, on this ſubject, may not be unacceptable to the public.

'The firſt care ſhould be to get a firm foundation. All the ſoil, and any ſoft ſubſtance that may be under it, muſt be thrown aſide, till gravel, rock, or hard till is found. In caſes where this would be difficult or expenſive, let the bottom of the road, after paring off the ſurface, be laid with bruſhwood, bramble, the branches of trees, eſpecially thoſe which have numerous twigs, or ſuch weeds and roots as are tough and coheſive. Theſe form a kind of thick net, to prevent the ſtones from ſinking, and the mud from riſing. The ſtones ſhould all be hard, broken very ſmall, and none of them ſmooth or round. The rough ſides and ſharp edges and angles of thoſe pieces made by the hammer, adhere together, detain the particles of ſand and gravel which are forced down among them, and become a compact and firm body. Whereas large ſtones, and even ſmall ones, when ſmooth or round, invariably work their way to the ſurface by the jolting of heavy carriages. The greateſt depth of ſtones ſhould always be on the middle of the road, and there ſhould be a very gentle ſlope towards each ſide, not above an inch or thereabouts to every three feet. When the ſlope is leſs, water will not deſcend readily; and, when it is much greater, all carriages will ſhun the declivity on the ſides, and go along the higheſt part, cruſh it down, form ruts, and deſtroy the road. A ſlope of five or ſix inches in fifteen feet is too trifling to be felt as an inconveniency by any carriage, and affords reaſon to expect an equal preſſure on every part of the road, than which nothing is more eſſential to its durability. It is alſo of vaſt importance to ſpread the gravel thickly, and equally, ſo that the teeth of a common garden rake may paſs along, and draw aſide the largeſt of thoſe ſmooth and round ſtones with which it abounds, without reaching the broken ſtones laid below. Theſe round and ſmooth ſtones, however ſmall, ſhould be ſubjected to the hammer, and mixed with the other ones which are ſtill uncovered. If the road, after being thus gravelled,

was

was carefully beat down with a rammer, or if a heavy roller was drawn along the ſummit and each ſide, all inequalities and hollows would ſooner appear, and could eaſily be filled up with coarſe gravel. A ſmooth, equal ſurface, by not occaſioning jolts, removes one manifeſt cauſe of injury to roads. And a little care for a ſeaſon or two to fill up and conſolidate the ruts, will preſent a road which, of all others, bids faireſt to laſt long, and need little reparation. It is, indeed, attended with extraordinary trouble and expence at firſt; but will prove a ſaving in the end. By attending to theſe principles, truſtees on turnpike roads may be aſſured, that they ſhall be no loſers in the courſe of 30 years.'

Perhaps the author has thus deſcribed the beſt way of forming and making roads that has been hitherto deviſed; and we heartily beſtow our approbation upon the methods ſuggeſted by him. Road-making has been treated very ſuperficially in moſt of the county Reports, though few branches of political economy are more nearly connected with agricultural proſperity than the making and repairing of public roads.

We ſhall conclude with obſerving, that we could have wiſhed the author had taken to himſelf more latitude than he has thought proper to aſſume in regard to extenſive general reaſonings, for which his talents are abundantly adequate. Meantime, in ſo far as he has gone, we in general coincide with him; particularly in his opinion as to the abſurdity of withholding leaſes, even in mere paſture diſtricts, and of refuſing to the tenant the complete alienable property of his leaſe. In the ſentiments expreſſed upon theſe points, Dr Douglas will be joined by nine-tenths of Britiſh agriculturiſts; and we rejoice to ſee doctrines, which we have long maintained, judiciouſly illuſtrated by a gentleman who muſt be regarded by all parties as an impartial judge.

F.

A Philoſophical and Practical Treatiſe on Horſes, and on the Moral Duties of Man towards the Brute Creation. By John Lawrence. 8vo. 2 vols. Symonds, London. 1802.

TO farmers, few ſubjects can be more intereſting than that of the publication now under notice. Horſes, our ſole agents of labour, at leaſt in this quarter of the empire, are of ſerious importance, from their high price and expenſive keep. Hence, independent of moral feelings, every attempt to inſtruct us how to preſerve them in health and vigour, or to reſtore them when diſeaſed, muſt be received with complacency. How far the preſent performance is calculated for fulfilling theſe important ends, we ſhall not preſume to decide; not pretending to deep knowledge

ledge in the veterinary art: But we conſider it our duty to inform our readers of every publication that comes in our way, ſo nearly connected with agriculture.

Having never ſeen the firſt edition of this book, we know not how far the ſecond, now before us, may have been improved or enlarged: But the book certainly handles a number of very uſeful topics, in a moſt facetious and pleaſing way, though often rather whimſical and paradoxical in the expreſſions and the ſentiments which it inculcates.

In the very outſet of our obſervations, we muſt take leave to diſſent from the ſtrange account our author has been pleaſed to give of himſelf and his work. Were we to believe him implicitly, we muſt of neceſſity have thrown away his volumes, as the offspring of imbecility: For in his preface, he apologizes 'for the weak, defective, prolix, and tedious execution; as the offspring of a mind not naturally brilliant, but enfeebled, confuſed, and irritable, from chronic bodily weakneſs; and of a memory, at intervals, ſcarce ſufficiently retentive for the ordinary purpoſes of life.'

That his mind is irritable, we certainly have ſtrong proofs, in the ſevere manner in which he reprehends the unacknowledged plagiariſm of Taplin, his competitor for veterinary fame: But he gives ſo many inſtances of good ſenſe and ſound reaſoning, interſperſed indeed with what we conſider as miſtakes in principle, though not numerous, that we are under the neceſſity of queſtioning his accurate knowledge or deſcription of his powers in other reſpects.

In the introductory chapter to the firſt volume, a critical account of veterinary writers affords ſome very curious ſpecimens of the ingenuity of ancient horſe-doctors for poiſoning their patients; and ſome methods of torture, that no man above the level of a bullock-hunter can conceive without horror. One expreſſion, in an innocent receipt of old Markham, we ſhall enable our author to comprehend, and help him out at a dead lift, to uſe his own words. A *moldy-warp*, he may pleaſe to inform the old wives of his acquaintance, is very nearly the German and Scotiſh name for a *mole*.

After a chronological account of writers on horſes, from Blundevill in Queen Elizabeth's reign, through Morgan, Maſcal, Martin, Clifford, and others now forgotten, and the *redoubtable* Gervaſe Markham; who, he ſays, 'was the oracle of ſapient grooms, the fiddle of old wives, and the glory of bookſellers; though only a mere vulgar and illiterate compiler of works, ſtuffed with all the execrable traſh ever invented by writers, or practiſed by farriers;' he ſtops a little to conſider

and

and comment upon ſome of the contents of his *Pandora's box*, but which we ſhall not preſent to the taſte, ſmell, or feelings of our readers. Baret, De Grey, and Snape, come next in order. The Duke of Newcaſtle is mentioned, with a ſtrange alluſion about *the half of a ſtately pair*, which we confeſs ourſelves too dull to comprehend. Sir William Hope is the laſt in his liſt of exploded writers, who, ſince old Markham, drenched the wretched horſe with nauſeous flops, or conſigned him to uſeleſs torture in the hands of ignorance and brutality.

Gibſon and Bracken are next mentioned with praiſe, as having firſt eſtabliſhed veterinary practice on true medical principles. Many others are noticed, as having publiſhed on the ſubject; but theſe two only are conſidered as any way entitled to the merit of originality.

Of the numerous ſucceſſors of thoſe two favourite writers, the opinion of our author ſhall be given nearly in his own words: 'Of mere compilers, &c. we have had many more than *quant. ſuff.* in the preſent century. Of theſe worthy labourers, ſome had perhaps a ſuperficial knowledge of horſes, but none at all of phyſic or ſurgery: others had a ſmattering of medicine, without any knowledge of horſes; but moſt ſeem to have known nothing of either.'

The Treatiſe on Live Stock, by the experienced and reſpectable George Culley, is almoſt the only work which eſcapes the reprehenſion of Mr Lawrence. This he properly characteriſes as 'the only original work of the kind in our language, and as containing a moſt valuable fund of information.' The treatiſes which have been publiſhed by Mr Clark, his Majeſty's farrier for Scotland, are alſo exempted from his opprobrious liſt, and treated with conſiderable and well merited reſpect.

Not to be tedious, we ſhall now refer our readers to the work itſelf, for the critical remarks it contains on the veterinary writers of France. His next object of attention, is *the Gentleman's Stable Directory*, by Mr Taplin. And here Mr Lawrence certainly aſſumes the critic *con amore*. He alleges, that Mr Taplin, 'who profeſſes to teach an entirely improved practice, and to exhibit remarks on the dangerous, and almoſt obſolete, practice of Gibſon, Bracken, Bartlet, and Oſmer, has only compiled from theſe, in the moſt barefaced manner, though endeavouring to conceal his plagiariſm under the cloak of downright ribaldry, pretended experience, or affected invective.' How far theſe very ſerious charges may be juſt, we ſhall not attempt to inveſtigate. Veterinary medicine and ſurgery are not profeſſionally known to us; and the dry labour of comparing

ſyſtems,

ſyſtems, of which we do not pretend to be fully converſant in the principles and practice, we do not conceive to be within our province.

The whole of the firſt Volume, and a conſiderable portion of the ſecond, though divided into chapters, as conſtituting integrant parts of a regular whole, contain, in fact, a number of detached eſſays upon various topics. Theſe are indeed connected with the general ſubject, horſes; but frequently indulge in epiſodical deviations, in which the connexion is by no means very evident. The introductory chapter we have already noticed. The others, in the firſt volume, are—On the horſe in general—On the *rights* of beaſts—On the hackney and hunter—The modern method of riding—On draught cattle—On the menage—On ſhoeing.

In the ſecond volume—On the philoſophy of ſports—Stable economy—Draught oxen—Purchaſe and ſale—The turf.

Then follow a number of chapters, containing our author's propoſed ſyſtem of veterinary practice. And the work concludes with a chapter on the diſeaſes of horned cattle, and the proper treatment of cows and calves.

It would very much exceed our limits to attempt any analyſis of the contents of thoſe numerous diviſions; and we have already expreſſed our incompetence to decide on the merits of many of them; beſides, our author does not pretend to originality in his veterinary ſyſtem, which is acknowledged to be compiled from his favourites, Gibſon and Bracken.

The third chapter of volume 1ſt treats *on the rights of beaſts*; and we confeſs that much ſatisfaction has been received by us on the examination of it. After diſcuſſing the abſtract principle with conſiderable ability, the author declares, that

—'the grand ſource of the unmerited and ſuperfluous miſery of beaſts, exiſts, in my opinion, in a defect in the conſtitution of all communities. No human government, I believe, has ever recogniſed the *jus animalium*, which ſurely ought to form a part of the juriſprudence of every ſyſtem, founded on the principles of juſtice and humanity. The ſimple right of theſe four-legged, and mute citizens, hath already been diſcuſſed. Experience plainly demonſtrates the inefficacy of mere morality to prevent aggreſſion, and the neceſſity of coercive laws for the ſecurity of rights. I therefore propoſe, that the Rights of Beaſts be formally acknowledged by the ſtate, and that a law be framed upon that principle, to guard and protect them from acts of flagrant and wanton cruelty, whether committed by their owners or others. As the law ſtands at preſent, no man is puniſhable for an act of the moſt extreme cruelty to a brute animal, but upon the principle of an injury done to the property of another; of courſe, the owner of a beaſt has the tacit allowance of the law to inflict upon it, if he ſhall ſo pleaſe, the moſt horrid barbarities.' p. 123.

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It is clear that no man can be puniſhed for cruelty ſhown to an animal, unleſs it belongs to another perſon; and the puniſhment then inflicted proceeds upon the ground, that the property of your neighbour is injured, and not becauſe the animal was hurt or deſtroyed. Indeed, ſome of our great orators appear to think, that the true Britiſh character is preſerved by encouraging brutal ſports. Their theory ſeems to be, that cruelty and bravery are ſynonymous terms. Therefore, any ſtatutory regulations, ſuch as propoſed by our author, will always be oppoſed by people of this unhumanized deſcription.

In volume firſt, p. 322. and again, volume ſecond, p. 121. our author labours hard for oxen as beaſts of ſlow draught for farm work, in preference to horſes; though he previouſly appriſes his readers, that 'he has never uſed oxen for draught.' We cannot help remarking, that this puts us in mind of the monkey in the fable, who perſuaded puſs of the excellence, pleaſantneſs, and ſafety, of taking cheſnuts from the fire with her paws, though he did not chooſe to riſk his own. He quotes Mr Culley, already mentioned, with well merited praiſe, as keeping one hundred and fifty draught oxen; uſing them, in pairs, in the plough, with reins, and no driver, and ſingle in carts. How this fact may be, we know not: But ſeventy-five ploughs, even ſuppoſing no horſes kept, would indicate a moſt enormous farm, eſpecially conſidering that Mr Culley is a moſt extenſive breeder and feeder of ſheep. It is likewiſe rather ſingular, that the Agricultural Report for Northumberland, drawn up by Mr Culley, in conjunction with Mr Bailey, ſhould give a moſt deciſive opinion in favour of horſes, as beaſts of farm draught, after a fair diſcuſſion of their merits and expences, as compared with thoſe of oxen. Perhaps our author takes the paſt for the preſent, and does not reflect on the many changes introduced into rural practice ſince the time that Mr Culley's book on live ſtock was publiſhed. If Mr Culley has changed his ſentiments on the working of oxen, it is the ſtrongeſt proof that can be offered in favour of the ſuperiority of horſes. As already ſaid, we are ignorant how the matter exactly ſtands; but, as the Northumberland Survey more decidedly embraces the cauſe of horſes than any publication we have peruſed, it is fair to infer, that that moſt reſpectable agriculturiſt has ſeen cauſe to change his ſentiments, and conſequently his practice.

Of the merits of the ſyſtem of veterinary practice, we have already declined, for good reaſons, to give any opinion. On one ſubject, however, an old ſurgeon, not veterinary, has furniſhed the following hint. Mr Taplin, with great and proper zeal for the ſafety and care of horſes, ſtrongly inculcates the propriety

propriety of only employing the very beſt medicines of every kind. This is too much neglected, even for the internal uſe of human patients. On the ſubject of aloes, he inſiſts that none, except ſaccharine, ought ever to be exhibited. Our friend alleges, that the kind called beſt Barbadoes are perfectly ſafe, and much cheaper; but hints, that purging, in general, except with great precautions, and in moderate doſes, is very dangerous for horſes; in conſequence of the enormous length of their ſmall guts, and the peculiar inſertion of theſe into the colon and cæcum, from which horſes are often killed, by theſe latter being burſt, through the exceſſive violence of ſome purges.

In order that our readers may be enabled to form a tolerable notion of Mr Lawrence's principles and method of writing, we give the following extract.

P. 470. volume ſecond, ſpeaking of the colic, a diſorder that kills more horſes than all others put together, he ſays—

'The primary cauſe of a common fit of the gripes in a horſe, is, nine times out of ten, an accumulation of indurated excrement in the inteſtines; for, independently of the ſolid obſtruction ſo occaſioned, the uſual proximate cauſes would ſeldom have power to work thoſe ſerious effects we witneſs; thus, in a horſe, the colon of which was not previouſly infarcted and plugged up, the effect of a ſlight cold thrown upon the bowels, or the devouring a few new beans, would probably paſs off with a very moderate ſtruggle from nature.

'The ſymptoms ſcarcely need deſcription—cold dew at the ear-roots and flanks; frequent pointing to the ſeat of complaint, and a deſire to lie down and roll; ſudden riſing, and great agitation: the greatneſs of the agitation, or rather jactitation, no convulſions exiſting, ſeems to form the diagnoſtic in all colicky complaints.

'The CURE requires prompt and vigorous meaſures, and plenty of aſſiſtants to conduct them. Looſe ſtable, or out-houſe, well littered down, that the horſe may have room to roll himſelf without injury. Clothe with warm dry clothes. Man to attend the head, that it be not beat againſt the pavement or wall; another, or two, to rub the belly well at every quiet interval; a more effectual help than generally imagined, to diſperſe the wind. Bleed, if poſſible, in the neck veins, not only to aſcertain the quantity, but becauſe, ſurely, it cannot be irrational to ſuppoſe ſuch a ſubſtance as blood improper to be taken into the ſtomach, under the circumſtances. Whilſt medical remedies are preparing, walk the horſe about briſkly in hand, one following with a whip; or keep him to the jog-trot; but drive him not faſt, or haraſs him, on any pretence, which has ruptured the belly of many a horſe, and which at leaſt often inflames and exaſperates the ſymptoms. Back-rake with a ſmall hand well oiled, and give the common gruel GLYSTER, with half a pint of oil, and a large handful of ſalt: immediately pour down by the mouth, half a pint of Holland's geneva, rum, or brandy, and a like quantity

quantity of ſweet oil, mixed, or a little diluted with thin gruel, if thought too ſtrong; keep the horſe on his legs, and exerciſe him forthwith. If to be obtained ſoon, and demanded by the exigence, add to the glyſter four to ſix ounces of Glauber's ſalts: Or, of tincture of jalep, or of ſenna, two ounces; or beſt aloes, in very fine powder, half an ounce; and to the drink, three or four ounces ſyrup of buckthorn; or *Elixir Proprietatis*, or *Tinctura ſacra*; caſtor oil may be uſed inſtead of olive; a notched onion may be thruſt up the fundament; or an onion, and a piece of ſoap the ſize of an egg, beat up together into a ſoft bolus, with a pinch or two of pepper; afterwards a glyſter of black ſoup, one ounce to a pint warm water. Should ſuppreſſed perſpiration thrown on the bowels be among the cauſes, the warm ſeeds, ginger, caſtor, and camphor, ſhould make part of both the drinks and glyſters. For a large cart-horſe, where wind is not the predominant ſymptom, and no appearance of cold, the following drink: Gin, brandy, or rum, and ſweet oil, one pint each, mix with the ſolution of ſix ounces Glauber's ſalts, repeat in two or three hours, warm gruel in the interim. The repetition of theſe muſt be left to the judgement of the practitioner; but plenty of warm gruel and warm water ſhould ever, in theſe caſes, be at immediate call; as ſometimes the throwing in two or three gallons of theſe, at both ends, and at proper intervals, will do the needful, with little or no aſſiſtance from the apothecary. Bracken cautions againſt the common practice of farriers, who give large quantities of Venice treacle, mithridate, or diaſcordium, both by way of drink and glyſter, upon loaded inteſtines; thereby locking up the cauſe of the diſeaſe ſtill more ſecurely: he compares it to firing a piſtol into the horſe's fundament, by way of clearing all obſtructions at once. Maſhes. A week after the cure, a gentle purge or two.

'The FLATULENT, or WIND COLIC, is known by great fullneſs and tenſion of the belly, from rarefaction of the air contained in the inteſtines; *borborigmi*, or rumbling of the guts, diſcharges of wind, and frequently ſtrangury, occaſioned by the fullneſs and preſſure of the ſtreight gut upon the neck of the bladder. This laſt is denoted by the horſe rolling upon his back, and by frequent ineffectual attempts to ſtale. Crib-biters, from conſtantly ſucking in large quantities of air, are particularly ſubject to windy gripes.

'The intention of CURE plainly conſiſts in the ſpeedy exhibition of volatile and carminative, of diuretic and laxative medicines, which ought to be given both in the form of glyſter, and by the mouth. Ball. Straſburg, or Venice turpentine, juniper berries, and carraway ſeeds pounded, each half an ounce; fine aloes, well powdered, two drachms; ſal prunel, one ounce; chymical oil of juniper, one drachm; ſalt of tartar, two drachms; ball with honey and hard ſoap. Waſh down with a pint or two warm gruel. OR, the following drink: Caſtile ſoap and nitre, one ounce each; juniper berries, and carraway ſeeds, half an ounce each; ginger powdered, two drachms; Venice turpentine, diſſolved with the yolk of an egg, ſix drachms; tincture of ſenna,

ſenna, an ounce or two. Mix with warm ale and treacle. Repeat. GLYSTER as before, with the addition of carminatives: camomile flowers, two handfuls; aniſe, coriander, and fennel ſeeds, one ounce each; long pepper, half an ounce. The following herbs are preſcribed; but as, in general, there may be a difficulty in obtaining them, I have ſubſtituted water-gruel, which, in truth, I have always found an excellent ſubſtitute: Mallows, pellitory, elder-flowers, the herb mercury, mullein, bear's-breech, &c.

'St Bell remarks on the difficulty of hitting the critical moment proper for the exhibition of opium in long continued pains, and of regulating the quantum of the doſe. He pretends, that ſhould the opiate be too weak, the pains will be enraged; if too powerful, that it will haſten death. Bracken determines the proper time for the uſe of opiates to be, after the cauſe of the diſeaſe ſhall have been removed by lenient purgatives and glyſters; when the former are requiſite to complete the cure, by appeaſing pain, allaying the tumult of the bowels, and obviating ſuperpurgation or flux.' p. 470—475.

We now diſmiſs Mr Lawrence, from whoſe ſingular performance we have derived much amuſement; and, though we cannot commend the irritation with which he has choſen to attack Mr Taplin; nor the whimſical excurſive digreſſions in which he ſo frequently indulges, we are diſpoſed to think our readers may find ſeveral things in his performance worth their peruſal.

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A Treatiſe on Leaſes, explaining the Nature and Effect of the Contract of Leaſe, and pointing out the Legal Rights enjoyed by the Parties. By Robert Bell, Lecturer on Conveyancing appointed by the Society of Writers to the Signet. Octavo, 481 pages, with an Appendix of 125 pages. Edinburgh, Creech, *and* Conſtable, 1803.

IN a ſuitable and well written Preface, Mr Bell informs his readers what was his object in undertaking this work. 'If (ſays he) I ſhall have been ſo fortunate as to convey to thoſe *who are better acquainted with agriculture than with law*, ſuch a notion of the legal rights of landlord and tenant, and of the various points to which the attention of parties entering into the contract of leaſe ſhould be turned, as may enable them to direct the conditions and ſtipulations of the contract with more confidence, I ſhall have fully attained my object.'

But the modeſty of Mr Bell's pretenſions in his preface is the more pleaſing, when we diſcover, on a careful peruſal of his performance, that he might, with great juſtice, have ſaid, This is the completeſt treatiſe on Scotch leaſes that has ever been

offered to the public, and equally uſeful to the lawyer as to the landed proprietor and farmer.

In explaining the nature of that contract betwixt landlord and tenant, by which the temporary uſe and poſſeſſion of land is beſtowed for a yearly rent; giving a hiſtory of this deed, and bringing fully into view whatever relates to its conſtitution; the rights which ariſe from it, and the actions by which theſe rights are to be enforced—Mr Bell propoſes to obſerve the following arrangement. We give it in his own words.

'I ſhall endeavour to explain the progreſs of the leaſe, previous to that period at which it appears in the authorities of our law.

'2. I ſhall conſider it as affected by theſe authorities.

'3. I ſhall then endeavour, in a commentary on the form of the leaſe, to explain the nature of the contract, with all the variety of regulations and conditions which the views of landlords and tenants, the peculiarities of their ſituation, or the ſtate and condition of the farm, may require.

'4. I ſhall conclude this part of the ſubject with an inquiry into the effect which, in various circumſtances, is given to verbal or informal leaſes.

'5. Proceeding then to the rights ariſing from the leaſe, I ſhall endeavour to explain the different intereſts of the landlord and tenant.

'6. The means by which the tenant's right may be transferred to purchaſers or creditors. And,

'7. The rules of ſucceſſion by which it deſcends to his heirs.

'8. The treatiſe will properly be concluded by a diſcuſſion of the forms of actions competent to either party.'

Accordingly, the Firſt Chapter treats of the ancient ſtate of the leaſe, in which Mr Bell endeavours to ſhow, that the cultivators of the ſoil of this iſland were not anciently ſlaves, as ſuppoſed by Lord Kaimes, and other writers on that ſubject, but were free men; and that 'the leaſe was introduced by the Romans; was in uſe in the times of the empire, and has continued, with no very eſſential alteration, to the preſent time. Its form was preſerved by the churchmen, whoſe notaries having ſucceeded to the notaries of the empire, preſerved the forms of their deeds, and handed them down to the conveyancers of modern Europe.'

In illuſtration of this doctrine, Mr Bell has given, in the Appendix, ſeveral curious and learned notes.

The Second Chapter treats of the leaſe as affected by ſtatute, which particularly includes ſome diſcuſſion relative to what leaſes have the benefit of the act of Parliament 1449, by which tacks are declared effectual againſt purchaſers. He particularly takes notice of the caſe of the Earl of Hopetoun againſt Mr Wight at

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the Murrays, on the estate of Ormiston, who had obtained a sort of perpetual lease from Mr Cockburn of Ormiston. Mr Wight's tack was renewable every term of nineteen years for ever; and Lord Hopetoun, the purchaser of the estate of Ormiston, tried to set it aside, because it had no definite termination. The Court of Session found this lease, however, could not be reduced. Mr Bell observes, that in the decision in this case, 'the Court seemed to say, in express terms, that had Lord Hopetoun been a purchaser, unaffected by any such obligation as occurred here, he would not have been bound to give effect to the lease; the decision proceeding solely on the circumstance of his having barred himself from reducing any lease that might infer recourse against the seller.'

The Third Chapter contains the form of a lease, with many apt observations upon it. On this head, a somewhat curious question is treated of, viz. Whether a tenant, who is restricted by his lease from assigning it, or granting a subtack, has in any case the power of appointing a manager of his farm.

'Still it remains (Mr Bell observes) to be considered, before leaving this subject of the destination of the lease, whether, if assignees and subtenants are both excluded, it be in the power of the tenant, or his creditors, to possess the farm, under a manager for behoof of those having interest.

'This is certainly a most equitable power, now that large capitals are employed in farming: for how unjust were it, that a tenant, who may have contracted the debts that oppress him in improving the farm, and which improvements are capable of extricating him from his difficulties, should, in the event of any sudden misfortune, be deprived of those means of relief, on which both he and his creditors had a title to rely? A lease, which should exclude such a power of mananagement, without providing some other plan, by which full justice might be done to the tenant, would be highly fraudulent.

'This plan is said to have been devised by the late Lord Covington when at the Bar, and to have been followed, under his directions, in a case which came afterwards to receive the decision of the Court. That was the case of Jamieson Durham *v.* Henderson and Livingston, 23d January 1773. In this case, the Mains of Duntarvie were let to Livingston, his heirs and successors, excluding assignees and subtenants. In the 1770, the crop and stocking was pointed for debt; and the creditors having consulted Mr Lockhart as to the measures which they ought to follow, he advised them to appoint a factor or manager over the farm. In place of this, however, the tenant gave a right to Henderson, that he might be enabled to make out the engagements he had come under to his creditors, and, his advances being repaid, the right was to be at an end. The Court decerned in a removing against the tenant; and this is all that appears in the Faculty Collection. But the

matter was not allowed to reſt here; and the queſtion being brought under review, and urged on this point, whether the tenant might not appoint a manager? the Court continued the tenant in poſſeſſion.

'The point was again canvaſſed in a caſe, Laird & Co. *v.* Grindlay, 30th June 1791. This was the caſe of a mill let to Grindlay and his heirs, ſecluding aſſignees and ſubtenants, without the conſent of the landlord. Grindlay the tenant died; and his affairs being in diſorder, his creditors endeavoured to make an agreement with the landlord, by which they might have enjoyed the benefit of the leaſe during the period then to run: But, finding this impracticable, they applied to the tenant's brother, and prevailed with him, in the character of heir, to give a letter, empowering one of the creditors to manage and ſuperintend the mill, and to act as freely, in all reſpects, as if the heir were perſonally preſent; and he was taken bound to account to the heir for his intromiſſions, after deducting his neceſſary expences. On giving this letter to the manager choſen by the creditors, the heir received an obligation of relief from the creditors, freeing him from the conſequences of thus repreſenting his brother; and the profits of the leaſe were to go excluſively to the creditors.

'When this manager began to act, a removing was brought before the Sheriff, who (in reſpect it appeared that the heir was in poſſeſſion by means of his ſervants or mandataries, and that there is no clauſe in the deed requiring reſidence on the part of the tenant) diſmiſſed the action. The Lord Juſtice-Clerk (M'Queen) remitted the cauſe *ſimpliciter*, that is to ſay, adhered to the judgment of the Sheriff, and this judgment the Court confirmed.

'If, therefore, this power is to be taken away, it muſt be done by an expreſs clauſe, declaring the bankruptcy of the tenant to be an irritancy of the leaſe: But, certainly, where ſuch a clauſe is to be introduced, it were a piece of juſtice to provide for the proper letting of the farm, and the appropriation of the ſurplus rent to the tenant or his creditors.

'The great difficulty in deviſing a plan of this kind, will conſiſt in uniting the intereſts of landlord and tenant; for, on the one hand, it is obvious, that to diſpoſe of the leaſe to the higheſt advantage, it ought to be put up to public roup; whereas, by this manner of diſpoſing of it, the very thing happens which the landlord is anxious to guard againſt, and he is deprived of the privilege of chooſing his tenant: perhaps it might reconcile theſe jarring intereſts, were the creditors to have a power of offering a new tenant (and which new tenant would pay a premium to the creditors, and be preferred at a public roup, or in any way agreeable to the creditors); the landlord, on the other hand, poſſeſſing a power of retaining the farm, on paying the ſame premium to the creditors which the new tenant would have paid, had he been received by the landlord. In this way, the creditors would receive the full value of the leaſe, while the landlord, without ſuffering any loſs, would be able to exclude an improper tenant.'

In

In conſidering the manner of enforcing plans of management of farms contained in leaſes, Mr Bell takes a full view of the form of a leaſe propoſed by Lord Kaimes, with Dr Anderſon's remarks on that ſubject in the General View of the Agriculture of Aberdeenſhire; and he alſo conſiders at ſome length the obligation on a tenant, by his leaſe, to remove without warning, and ſeems to conſider obligations for additional rent ſtipulated to ſecure a removal as unneceſſary; though ſuch are ſuſtained by our Courts of law, as well as thoſe for ſecuring a plan of management.

The Fourth Chapter treats of the verbal leaſe, which is effectual but for one year; of the obligation to grant a leaſe; of the informal leaſe; and the circumſtances which may render an informal leaſe binding.

Chapter Fifth treats of the rights ariſing to parties from the contract of leaſe. Two prominent articles taken notice of in this chapter are, thoſe of ſtraw and dung on the hand of a tenant at the end of a leaſe; a ſubject that has been fully conſidered in our laſt volume: and as much the ſame principles are ſtated by Mr Bell as there laid down, it ſeems here unneceſſary to enter on any detail.

The landlord's right of hypothec is alſo conſidered in every point of view: caſes alſo of ſterility or calamity, and the tenant's intereſt in the ſurface, with the landlord's right to mines and minerals, including kelp, ſhell marl, pipeclay, &c. and privilege to hunt on the farm, are elucidated. On this laſt topic, the remarks of Mr Bell ſhall be preſented to the reader.

'Beſides the fruits, the tenant has right to the temporary uſe and enjoyment of the farm; and the leaſe muſt enable him to exclude all others from entering on the grounds, in the ſame manner that the landlord himſelf might have done.

'The right of property in lands implies, beyond all queſtion, an excluſive right of poſſeſſion. The proprietor may prevent all and ſundry from entering on his lands. Of this we have a ſtrong inſtance in the caſe of the Earl of Breadalbane *v.* Livingſton, June 16. 1790. Mr Livingſton, a gentleman of conſiderable landed property, and fully qualified by law to hunt, had hunted for ſome days in the moors belonging to the Earl of Breadalbane. Theſe moors were unencloſed, ſo that Mr Livingſton being qualified, and having entered no encloſure, the queſtion which was decided betwixt him and the Earl, was a queſtion as to the power inherent in a proprietor of excluding all others from entering on his property; and the Court found that Mr Livingſton had no title to enter the Earl's moors, and decerned in a declarator to that effect; not only ſo, but they gave expences againſt Mr Livingſton, a judgment which was affirmed in the Houſe of Peers.

'This caſe, though ariſing from a claim for liberty to hunt, is applicable to every caſe of an entry on the lands of a proprietor for recrea-

tion and amusement. In every case of the kind, the principle of this decision must protect the right of the proprietor, and enable him to exclude all others from entering even on his unenclosed ground without his consent.

'If this be the right inherent in a proprietor, this right must of course be communicated to the tenant; and without it he could not be said to have the use and enjoyment of the farm. In this view, the tenant, during his temporary possession, may, equally with the proprietor himself, exclude others from the farm. But here a question of some nicety occurs; and it may be asked, whether he is entitled to exclude the landlord?

'In certain circumstances, we know he cannot; for it has been found, in all the cases we have lately had occasion to consider, that the landlord has right to enter on the farm in the exercise of his reserved power. He may enter it to search for and work mines, and he may do so of course by those who are capable of performing that service. He may enter the farm to inspect his woods, or for the purpose of cutting them down, and disposing of them; or he may enter it to inspect the state of the farm. In all of these cases, the landlord by himself, or those acting under him, must have access to the farm. But it may be questioned, whether this right can be extended to the case of hunting or of recreation.

'This is a question which cannot be said to have been hitherto taken up by the Court: it did occur in the form of an advocation from the Sheriff-court of Ayr, where it had been found, that the landlord possessed a right of hunting. But the bill was passed, and the question is still in dependence before the Lord Ordinary.

'On this point, I may be forgiven for making a few observations, since their tendency will only be to render a landlord, who is desirous of preserving a power to hunt over his own grounds, careful to make an express reservation of that power in his leases.

'The right of hunting is merely a right of killing, or taking, that description of animals, known under the name of *game*; it is not a right connected with the property of land, since the acts by which the qualification is constituted, are intended to restrict an existing right, not to create a new one. The right of hunting was, at one time, not only open to every man in the kingdom, but was enjoined as an exercise necessary for preserving the military spirit of the people; the power thus vested in every individual was, by the act 1621, c. 31. restricted; and those only who were possessed of a ploughgate of land in heritage were declared qualified to hunt. But this privilege does not enable a qualified person to hunt in the fields of another; it gives merely a right of killing game in those places to which he has free access.

'There is, therefore, no magical power in the term, hunting; and a landlord, when he pretends to have a right to traverse the fields of his tenant, for the purpose of hunting, is equally entitled to say, that he possesses the same power in pursuit of a butterfly, or in any botanical research with which he may choose to amuse himself.

'If a landlord has a power of entering at all times on every part of his tenant's possession for his amusement, he must be equally entitled to

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do so where it is connected with his own conveniency; of course, he must be entitled to make a road for himself through the most convenient part of the farm. But this will scarcely be said to be within the power of the landlord; and yet the power of excluding the landlord from using a road, implies in it the power of excluding him from those individual acts of trespass, of which the road is the aggregate; or we must say, that a landlord, though he cannot pass through the fields of his tenant for his convenience, may do it for his amusement.

'It may perhaps appear to be a strong argument in favour of the landlord, that no opposition to the exercise of this privilege has hitherto been made by the tenantry of this country. But when the situation of that tenantry, and the state of husbandry, is considered, it ought not to appear surprising, that a question of this kind should occur only when attention begins to be paid to the true interests of agriculture; and the same sound policy which at one time prescribed hunting as a means of national strength, ought now, with the same view, to protect with equal care the operations of the farmer. But how can such an argument have weight, when it was only last day that Lord Breadalbane vindicated, for the first time, the right of proprietors, and, by the the decision of a Court, protected their unenclosed property from the foot of the hunter?

'It were strange, indeed, should the law protect the most barren hill in the Highlands, a property incapable of damage, while it is unable to protect the rich enclosed field of the farmer from the destructive intrusion of men, and horses and dogs, and all those followers who do not fail to attend on such occasions; intrusions, which must derange the operations on which the individual success of the farmer, as well as the advantage of the country at large, must depend. It is true, he would be entitled to redress, but that redress which a tenant might find in a Court of law, is one to which no prudent man will resort. And whether a burden of this kind ought, in the present state of husbandry, to be imposed on the operations of the farmer, is a question that merits a very serious and deliberate discussion.

'This is a point which being once suggested, the peace, as well as the interest of the parties requires that it should be put to rest by a judgment in the last resort; it will otherways remain as a source of dispute, to which the landlord or tenant may equally resort, as a means of gratifying ill humour.'

Chapter Sixth treats of the means by which the tenant's interest in the lease is transferred, viz. 1. By assignation, of which a form is given, and analysis of the clauses of it; and, 2. By sub-lease.

The Seventh Chapter explains the rules of succession to the interests of landlord and tenant in the lease, and the nature of the title required in the person of the heir of the tenant. Some nice questions are here considered with regard to what the executors of a landlord are entitled to succeed to of the rents, and what

the executors of a tenant ſucceed to, and how far they are burdened with rents due, and to become due to the landlord.

The laſt Chapter gives a full account of the nature and effects of all actions at law ariſing on the leaſe: And the Appendix contains the forms of ſuch actions, with copies of the acts of Parliament and acts of Sederunt on which they may proceed.

Throughout the work, Mr Bell gives in general no opinions but what are ſanctioned by deciſions of the Supreme Courts, which he quotes fully and accurately. The ſpeculative queſtions that he diſcuſſes are few, but theſe are ably handled. His manner is eminent for perſpicuity; and his ſtyle plain, pure, and adapted to the ſubject. In a word, we have received much ſatisfaction from a peruſal of this treatiſe, and earneſtly recommend it to the attention of our readers. A multitude of queſtions have lately ariſen betwixt landlords and tenants, many of which might perhaps have been avoided, if the laws in force for regulating the connexion had been more generally underſtood. It is not our buſineſs here to ſay whether theſe laws are, in every caſe, calculated to promote agriculture, and to maintain the intereſt of the tenantry; but we can ſafely declare that no former writer has illuſtrated them with greater ability than is done in the preſent caſe by Mr Bell.

A. S.

Postscript to First Branch.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Sir,

In common with many others, I derive pleaſure and advantage from the peruſal of your Magazine; and as I feel much intereſted in its well-doing, I take the liberty of addreſſing to you theſe few lines.

In a work of this nature, it is perhaps the duty, certainly the decided intereſt of its conductor, to convey inſtruction in language as temperate as poſſible.

I am led to this reflection, by obſerving that many expreſſions are uſed by anonymous writers, which, under their own ſignatures, they would hardly have ventured on, and by the peruſal of a criticiſm in a late number, on a work entitled '*The New Farmer's Calendar*,' in which I am in ſome ſmall degree implicated. Works by this author, like your own, are reported to have had a moſt extenſive ſale (the one in queſtion is ſaid to have gone through four large editions); and perhaps great authors, like great beauties in a country town, muſt feel a little jealous of each other's ſucceſs; but, like them, they ſhould alſo endeavour to be civil on all public occaſions.

The topic of animadverſion here alluded to, appears to be the accidental

accidental approbation of Ducket's hand-hoe, which I was guilty of recommending to notice ſome years ago. Doubts were entertained, or rather more than doubts, that a man could not hoe as much land, in a given quantity of time, as was repreſented in that work. The ſtatement was not mine; ſtill I can have no doubt of the fact; nor will the Reviewer himſelf have any, when he remembers, that the hoe cleans three rows of corn at nine inches intervals, at once. If he wiſhes to know the extent and importance of hand-hoeing, let him ſeek for information in the county of Eſſex, which one of your authors conſiders to be a well-farmed county. Your Reviewer's ſurpriſe will ceaſe, when he learns how much is done there in a day, and in many other counties, by the hoe of common conſtruction. Let him alſo advert to the price of hand-hoeing broadcaſt turnips; 4s. 6d. per acre for the firſt hoeing, a common price, where every turnip is ſet out and earthed up; and a leſs ſum for the ſecond.

I noticed, in a work lately publiſhed, the Portugueſe hoe, and expreſſed myſelf in the following words;—

'In the uſe of the hoe, the Portugueſe excel in a very great degree. The ſtrong land in their vineyards, which muſt be dug by hand, could not be worked by hoes upon a conſtruction common with us; but the handle being ſhort, as well as light, the hoe, by its own weight and conical form, cuts deep without much exertion. Every man who has ſeen theſe implements at work, will bear teſtimony to their extraordinary powers. Mr Mark Ducket, in his ingenious invention of a hoe for cleaning crops of all deſcriptions, whether drilled, or hand-ſet in rows, ſeems to have availed himſelf of a ſhort handle and heavy iron-work, the exact reverſe of our common hoe, which, except on the lighteſt ſands, demands great exertion to make any impreſſion whatever, if the ſoil be dry.

'The inhabitants of mountainous diſtricts on many parts of the continent ſet us excellent examples, by taking advantage of every ſpot of ſoil, however ſteep and difficult of acceſs, and turning it to the uſe of vegetation: Nor could this be effected by any better implement than the Portugueſe hoe. This hoe the author has put into the hands of a Weſt India gentleman, for the uſe of our colonies, who was bound to the Weſt Indies, and driven into the Tagus in diſtreſs. The author happening to expreſs his regret, that he had not, juſt then, the means of obtaining for him Mr Ducket's hoe, which, in conjunction with the other, would form a complete ſyſtem of hand culture, where hand culture was requiſite, was ſurpriſed and gratified to learn, that ſome dozens of theſe hoes were actually on board the veſſel, for the uſe of the colonies. It then occurred to him, that he had, in the courſe of laſt ſummer, ſuggeſted the uſe of this implement to a very diſtinguiſhed perſonage, who intereſts himſelf not a little in the welfare of thoſe iſlands. Many will perhaps ſuppoſe, that this hoe, however applicable elſewhere, would

would be of but little uſe here. It will, however, appear to be ſerviceable in many caſes, ſuch as digging dung, or compoſt of lime and earth—angles of fields—where the plough has not room to act—very ſteep ground, not ſo well ſuited to the ſpade—forehands (head-lands). This practice is well underſtood in the vale of Taunton, and recorded by Liſle, even in his time, as an admirable practice of long ſtanding there. (See an account by the author, in Annals of Agriculture, 1798.) It will alſo be found uſeful in hand-digging orchards and plantations; the young trees of which will not only thrive better for ſuch treatment, but might ſupply abundant crops of potatoes to the proprietor and labourer. If, in this caſe, the former finds land and manure, and the latter finds labour, the crop may be divided between both; but if no dreſſing can be afforded, the whole crop ſhould be the labourer's, becauſe the landlord will derive an ample benefit from the improvement of his timber, provided the crop be dug with care. The graſs of plantations ſeldom turns to any account, nor is much good derived from that of orchards, for it is of a cold and ſour nature, owing to the ſhade; and little profit will ever be found in it as hay, unleſs ſprinkled with ſalt. It is probable that orchards would derive as much benefit from the uſe of the hoe as plantations.'

On the ſame principle, Sir John Sinclair recommended, for general adoption, the field ſpade now uſed in Normandy, Italy, and in the ſouth-weſt counties of England. Its conical ſhape enables it to move ſtone land far better than the broad garden ſpade; its curved handle enables the workman to ſtand upright and make it (the handle) a lever (of which his knee, or rather thigh, is the fulcrum); qualifies it to ſpread abroad lime; and it is likewiſe admirably conſtructed for cleaning out the bottom of wet ditches.

You will now ſee, that theſe hand-hoes were recommended, not to ſuperſede the horſe-hoes, but to act where they could not be applied. On my own farms, I ſhould be ſorry to yield to any of your numerous readers in the uſe of the horſe-hoe, either as to expedition or neatneſs of work. All that is in any degree level of ſurface, provided the ſoil works free, and is loamy, we drill; where the land is ſteep, or the ſoil heavy, we broadcaſt.

The drilled wheats we horſe-hoe twice, the barleys twice alſo, before the graſſes are ſown broadcaſt and bruſhed in. The peas, drilled at 15 inches intervals, are horſe-hoed thrice, beſides hand-hoeing the rows.

You will therefore ceaſe to think me an enemy to the horſe-hoe, where with convenience and profit it may be worked. We will proceed to ſay a few words on another ſubject.

On the great queſtion of working oxen, I am deſirous that we ſhould alſo come to a right underſtanding; and I truſt that, although my opinions may differ from yours, you will do me

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the juſtice to believe, that I advance nothing without proof, and that the beſt recommendation of theſe my ideas to your notice, is an honeſt deſire to ſerve the common cauſe, and an inceſſant attention and practice for nineteen years paſt. The uſe of oxen, even under many impediments, has been perſevered in for ages paſt, and will continue in every country where a breed is found active in themſelves, and of a form and ſize well adapted to labour; but now that oxen fit for grazing are hardly to be found, this becomes every day a queſtion of greater importance, the ſupply of our navy particularly conſidered. We muſt not conceal from ourſelves, that half grown, and therefore half fat animals will not take ſalt well; nor ſhould we forget, that our ſeamen muſt have ſalt beef, and good in quality too, as well as ſalt pork; and, on this account alone, labour, even to the amount of what theſe animals conſume, is valuable, becauſe experienced men know that the growth of a working ox is greater the laſt year of his work, namely, from five to ſix in cattle of moderate ſize, and from ſix to ſeven in larger ones, than in any other period of their exiſtence. We muſt take into conſideration alſo, that they are ſubject to few caſualties, and that they conſume little if any corn at all; which circumſtance, by the way, puts almoſt out of the queſtion any fair competition between them and horſes, even if the ſize and condition of fleſh were nearly the ſame. Every man, who travels poſt, knows the difference between the ſame horſe kept at graſs, or that well kept on hard meat: and the caſe exactly applies.

On theſe grounds, it is abſolutely neceſſary that your readers ſhould be undeceived as to the comparative powers of the horſe and the ox; the difference between which, even under circumſtances adverſe to the latter, will be leſs than they will readily conjecture. Two inſtances in point have occurred within theſe two months paſt. My authority for the firſt I give; of the ſecond I was an eye-witneſs. At the laſt meeting of the Dublin Society, there were many ploughs entered for the prizes given; and, to the ſurpriſe of every one, the oxen beat the horſes in ſpeed. They were worked in pairs only, without drivers. Theſe were not oxen ſelected from the moſt eſteemed breeds for labour, but the oxen of that country. Many of the ploughmen who contended for theſe prizes, were from the Lothians and Tweedſide. This I learned from Mr Rennell, whoſe knowledge and accuracy in matters of this ſort, thoſe who know him will vouch for.

At a meeting held the end of May laſt, at Barnham Wyck in Eſſex, for three prizes given, more than twenty ploughs ſtarted, three of which were worked by pairs of oxen each, without drivers. The oxen were bred on the eſtate, and of a ſort which are deemed by no means well adapted to labour. The horſe ploughs

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were picked teams. The difference of time in finiſhing the work allotted, was, to the beſt of my remembrance, about twelve or fourteen minutes between the average of the horſe and ox teams; ſo that, ſuppoſe them to be an hour and a half longer in their day's work, the difference in the time of reſt will be, if any thing, in favour of the oxen; becauſe animals which perſpire by the tongue, need not that dreſſing and care which thoſe demand, whoſe perſpiration eſcapes by the ſkin.

I beg to be conſidered as no friend to new ſyſtems where eſſential benefit will not reſult; for we who practiſe huſbandry, are too often the children of prejudice, and a change of ſyſtem is always painful to effect. Where an acre of land, or more *per* day, all deſcriptions of work conſidered, is ploughed by a pair of horſes, there is no reaſon to complain; the proprietor might benefit ſomething by the change; but, as a queſtion of public ſupply, it is moſt material to conſider, that our labour may be done, and well done, by animals which, having attained their full growth, we eat, rather than by thoſe which, after the ſame period, become daily of leſs value, and eat us.

Recurring, therefore, to my firſt requeſt, that, in labouring to promote the public intereſt, we ought to do it by means the moſt conciliating, I have to obſerve, that dictatorial opinions, unſupported by reaſon and proof, have no right to find their way into a work of this nature; nor can they long be found there, without injury to the work itſelf. One hundred years after the union of two kingdoms, we have no right to talk of ſeparate intereſts; but if ſuch a plea is to be urged, allow me to add, that I have an equal intereſt in the landed improvement of both; and rely on it, Sir, both the North and the South have ſomething to learn from, and ſomething to teach, each other. On theſe grounds it is that I beg leave to ſay, ſhould any experienced farmer have occaſion to viſit that part of the South where my buſineſs lies, a letter from the Publiſher of your moſt excellent Work will be his paſſport, and will ſecure to him the beſt hoſpitality my houſe, ſuch as it is, affords, that he may have leiſure minutely to examine our practice, and that of the country in which we are placed: there are no other means by which profeſſional queſtions, and thoſe too of great importance, can well be ſolved. In the mean time, if any of your readers are deſirous to know what our rate of labour is, I will, in a few words, ſtate it. We break in our oxen to labour at three years old: the firſt half year's work is eaſy. We ſell them to graziers at ſix years old, and in eight months they come to Smithfield good beef: In the intervening period, my work is done at the rate of about 80 acres of tillage to four oxen; and my twelve oxen, not including the three years old, will work 30 acres of land *per* week, when not employed in carriage

riage of lime or manure, which is 10 acres *per* week for each four oxen, or 5 acres for each pair; that is, 2 acres *per* day, for five days in the week, for each team of four, leaving them two reſting days: their day's work is done in ſeven hours and a half, which gives them ſixteen hours for reſt. If corn was allowed them, they would probably do more: if they did leſs, I would not uſe them at all. I allow one horſe to every hundred acres of land for extra work, and no more.

It may ſuggeſt itſelf to ſome, that an increaſed uſe of oxen in labour, by keeping employed thoſe animals which would otherwiſe become part of the ſupply at an earlier period, increaſe our preſent difficulty; ſo it might. I would even prefer to endure a preſent privation, to ſecure a permanent and moſt important good. Be perſuaded that, after the ſhort period of three years, the foundation being thus laid, the ſupply would thenceforward be regular and abundant. For the ſupport of our navy, we have no right to depend on Ruſſia. In Ireland, cattle are getting ſcarce; in this kingdom, far more ſo. But I beg pardon; I have preſſed theſe arguments elſewhere, and forget that at preſent neither you nor the majority of your readers, ſee this matter in the light I do. I have the honour to be,

Sir, with great reſpect,

SOMERVILLE.

Edinburgh, July 22. 1803.

Note by the Conductor.

We are highly obliged to Lord Somerville for the above communication, and obſerve with ſatisfaction that the general tenor of our work is agreeable to his Lordſhip. It is our duty, however, to ſay, that the criticiſm given by our Reviewer applied only to the quantity of work ſaid to be executed by Mr Ducket's hand-hoe in a given ſpace of time, and was not connected in the ſmalleſt degree with the general utility of the implement. We are equally advocates with his Lordſhip both for horſe and hand-hoeing, and will be extremely happy to receive from him ſuch information as may ſerve to demonſtrate the advantages of both.

With regard to giving dictatorial opinions in our work, unſupported by reaſon and proof, we diſclaim the imputation. We are friends to truth, and to the practice of rational huſbandry. So far as concerns us, the opinions given have been, and will continue to be, guided by practice and experience: but it is difficult to regulate a popular work upon one uniform principle, eſpecially where it is ſupported by ſuch a numerous body of correſpondents. N.

BRANCH

BRANCH III.

Agricultural Intelligence.

The weather, during the ſummer quarter, has been of an anomalous deſcription, and rather unfavourable to the growth of corn and graſs; particularly in the eaſtern diſtricts of the iſland. The month of May was exceedingly cold; a ſevere drought prevailed, accompanied with ſtormy winds, which, in a manner, extracted every particle of moiſture from the ſoil. In the firſt and ſecond weeks of June, ſome genial rains were received, which revived the fields very much; but, ſince the middle of that month, the weather has been generally dry, latterly very warm, conſequently auſpicious to the wheat crop during the blooming proceſs, but unfavourable to the late barleys, to the vegetating of turnips, and to the growth of graſs. Under theſe circumſtances, the current crop does not promiſe to be bulky; though, from the tenor of our information, it may, on the whole, be regarded as equal to that of common ſeaſons. No doubt, much depends upon the ſucceeding month of Auguſt; therefore opinions, at this period, muſt not be too ſtrictly applied. It is ſufficiently underſtood, by practical agriculturiſts, that not only the quality, but alſo the quantity, of grain is regulated by the warmneſs and temperature of the weather in the two laſt weeks of July, and two firſt weeks of Auguſt; for the beſt-founded expectations of the huſbandman are often diſappointed by rains, fogs, and winds, at that critical period.

The grain markets have ſhewn a diſpoſition to advance through this quarter; but perhaps the fall of ſtocks, and contraction of credit, may ſerve to occaſion a temporary declenſion. From all the accounts tranſmitted to us, it appears that there is no want of grain, eſpecially of barley, in the country, which, at leaſt in North Britain, remains undiſpoſed to a conſiderable extent. It deſerves notice, that, when a riſe or fall of markets is mentioned, reference is uſually made to the prices of former times, without attending that the rate of rents, the value of labour, and the enormous increaſe of public burdens, render it impracticable for the farmer to ſell his commodities upon the ſame terms as he did even a few years ago. In our remembrance, and we do not allude to a diſtant period, more money was made by ſelling oats at twelve ſhillings *per* boll, than can now be gained when they are at eighteen ſhillings. In fact, at the laſt price, they are lower to general conſumers; for the wages of labourers and artiſans are increaſed in a greater degree than the prices of grain have advanced.

advanced. If a cultivation ſuperior to that of former times had not been generally introduced, and the produce of a given ſpot of ground conſiderably augmented, it is obvious that the great body of agriculturiſts would inevitably have been ruined by the circumſtances condeſcended upon.

Cattle and ſheep, of all deſcriptions, continue to maintain high prices; and it is probable that a greater riſe will ſtill take place in the market value of theſe articles. Under this head, it may be remarked, that the value of butcher meat bears a greater affinity to the value of money, than other articles of farm produce; which is a circumſtance that ſeems to deſerve inveſtigation. Were we diſpoſed to hazard an obſervation upon the cauſes which have depreſſed grain below its value, we would put a conſiderable weight upon the tendency and operation of our corn laws, which, though apparently calculated to keep prices from ſinking, do, in reality, prevent a fair and equitable riſe. The limits, which we devote to this branch of our work, do not ſuffer us, however, to enter upon ſuch an inveſtigation, though it may afterwards be taken up. We may only add, that, when the reſtriction againſt importing cattle from Ireland was removed, the moſt of Engliſh graziers thought the breeding trade of England would be annihilated, as rents and every other thing were lower in the former country. No ſuch event however has taken place; and, in like manner, it is highly probable that a free corn trade would be attended with beneficial conſequences. We are hoſtile to every reſtraint upon trade, unleſs ſo far as the public revenue is concerned; and believe, the alone way to make any trade flouriſh, is not to interfere with, or ſtop its progreſs by fiſcal regulations.

We obſerve, with a good deal of ſatisfaction, that Government are now diſpoſed to conſider the internal improvement of the country as an object of importance; and, aſſuredly, the ſcene ſingled out for their firſt operations, is judiciouſly choſen. The Highlands of Scotland cannot be improved by ordinary exertions; and no private fortune is equal to the great and ſtupendous undertakings that are in contemplation. Without extraordinary aſſiſtance, the Highlands, in the courſe of a few years, would have been reduced to a mere ſheep waſte; but by the meaſures now going to be ſet about, the moſt beneficial meliorations may, in proceſs of time, be accompliſhed. By making roads, building bridges, and, in fact, rendering the country acceſſible, a door is opened for the introduction of trade and manufactures; and, at all events, employment is in the mean time provided for the deſtitute inhabitants. We conſider the CALEDONIAN CANAL as the moſt uſeful and public-ſpirited work ever undertaken in Britain; and venture to predict, that it will be regarded, by future hiſtorians, as the moſt prominent meaſure of the preſent reign.

Lewis

Lewis XIV. of France did more good to his kingdom, and gained more laſting honour to himſelf, by executing the celebrated canal of Languedoc, than by all his warlike and political exertions; and, ſo long as mankind are poſſeſſed of common ſenſe, they will beſtow greater praiſe upon the authors of meaſures calculated to promote their welfare and proſperity, than upon thoſe who waſte their treaſure and their blood in the execution of ſchemes, brilliant perhaps at the time, but tending only to ſpread miſery and woe over the face of the earth. The expence, of ſuch works as are now to be executed in the Highlands, ought always to be defrayed out of the public purſe. It is a triſle to the whole body, but an immenſe ſum to the few individuals immediately concerned. Were a ſyſtem like the one now, for the firſt time, adopted, to be ſteadily adhered to, Britain, at no very diſtant period, might be transformed into a kind of terreſtrial paradiſe; the people would get employment at home, and be rendered contented and happy; the trade and agriculture of the country would flouriſh in a degree greatly exceeding that of former times; and the national income (which to the public is the ſame thing as that of individuals) would increaſe in direct proportion with the meliorations produced.

While we ſtate the benefits which muſt follow a ſteady adherence to the ſyſtem now mentioned, it is but juſtice to recogniſe the ſource from whence the meaſures, now going to be executed, may be ſaid to have proceeded. We early conceived a favourable opinion of Mr ADDINGTON's adminiſtration, and on various occaſions have paid our tribute of approbation to the wiſdom of his meaſures. Formed by nature with the moſt happy and conciliating diſpoſitions, he regulates his conduct by the dictates of the public mind, and never perſiſts in forcing forward political regulations, if they are generally diſagreeable. A Prime-Miniſter has it in his power to do a great deal of good, and likewiſe to do much harm. When the country are bleſſed with one that ſtudies to patronize objects connected with internal proſperity, they have cauſe to rejoice. Nay, the people are called to do more: They are in duty bound to ſupport the adminiſtration of ſuch a Miniſter with vigour and perſeverance, leſt in the event of a change their intereſt ſhould ſuffer or be neglected.

That indefatigable patriot, Sir John Sinclair Baronet, on the preſent occaſion, alſo claims our notice, having communicated to the Committee of the Houſe of Commons, appointed to conſider the plans for the improvement of the Highlands, a number of judicious hints, the ſubſtance of which is given in the firſt branch of this number. Sir John is likewiſe engaged in extenſive ſchemes for the improvement of the county of Caithneſs, a ſketch of which he lately tranſmitted to us; and we are extremely ſorry that our confined

limits

limits reſtrain us from doing more than merely mentioning them. He is at preſent buſy in improving a ſheep farm, on a great ſcale; cultivating a ſhare of a large common, which is chiefly allotted by him to the ſmall farmers removed from the ſheep farm above mentioned; eſtabliſhing an inland village at Halkirk, and a fiſhing village at Brodieſtown. The extenſion of the town of Thurſo alſo claims a principal part of his care; and, in ſhort, he is doing more for the improvement of his native county, than perhaps was ever attempted, in any inſtance, by a ſingle individual of his rank and fortune. We admire the unabated zeal of the worthy Baronet, and remark with pleaſure, that no difficulty is too great for his exertions. In a word, he never loſes ſight of his object, but ſteadily perſeveres till it is accompliſhed.

In our laſt we diſcuſſed, at conſiderable length, the queſtion, Whether Scotland was able to pay a malt-tax of equal extent with England? and gave it as our opinion, that, if levied in both countries at the ſame rate, fatal conſequences would enſue to our agriculture. If we were right, (and public opinion ſeems now to be on the ſide we eſpouſed), then theſe conſequences muſt be dreadfully increaſed by the heavy additional burthen, ſince impoſed, of two ſhillings per buſhel; which in fact will amount altogether to a tax of twenty-two ſhillings and ſixpence per Limlithgow boll of barley, malted in Scotland; whereas the ſuperior barley of England will only pay about twenty-ſix ſhillings and ſixpence. We find no fault with the tax, merely as a matter of revenue, if it had been impoſed upon juſt principles; that is to ſay, had Scots barley been taxed in proportion to its real value: but as this is not the caſe, every argument, formerly uſed, receives additional force. In fact, if the preference then amounted to ſix ſhillings per boll, on the ſide of Engliſh barley, it is now augmented to double that ſum at leaſt, though perhaps local circumſtances may prevent this preference from operating regularly in our markets. Except in particular ſituations, Scots barley cannot now be malted but under an inevitable loſs, unleſs it is ſold at a price below its real value. We ſay, its real value; becauſe the price is artificially depreſſed by the operation of heavy taxes, on all the ſtages of manufacture; and this artificial depreſſion ought to be conſidered, when the propriety of an equal tax is diſcuſſed.

Still, under theſe circumſtances, there is cauſe to believe that the matter will ſoon be adjuſted upon fair and equitable principles. Mr ADDINGTON has promiſed that a Committee ſhall be appointed early in next ſeſſion, for aſcertaining the relative qualities of the barleys of both countries; and here we reſt our hopes. If a proper Committee are appointed; if they are men

poſſeſſed of profeſſional knowledge, or even capable of pronouncing upon the evidence that will, of courſe, be laid before them, then little doubt need remain but that their report will ſatisfactorily ſhew that the barleys of North Britain are unable to pay the ſame tax as thoſe raiſed in the ſouthern diſtricts, where ſoil and climate are confeſſedly better calculated for raiſing that grain in perfection. What is to be made of Scots barley, in the mean time, is a queſtion not eaſily anſwered. An act allowing a free exportation to any place where it could be vended, would have been but common juſtice: as matters ſtand, it will lye on hand, a dead article, to the great loſs of the owners.

A memorial, on the malt buſineſs, from a number of gentlemen who met at Edinburgh in the month of April laſt, was ſent us; but, with ſubmiſſion, we are in duty bound to remark, that the meaſures recommended by them were not calculated to procure the relief wanted. They propoſed to let the Scotch tax ſtand as it was enacted, and to burden the public with a duty upon all Engliſh barley imported into Scotland. This, to a certain extent, might have benefited the farmer, but it would have taken a ſum exactly of the ſame extent out of the pockets of the public at large. In other words, Scotland would have paid 20,000l. or perhaps 50,000l. more of taxes, merely that the malt duty ſhould not be put upon its ancient and eſtabliſhed footing. But did it not occur to theſe gentlemen, that a decided oppoſition to the meaſure would be ſhewn by the Engliſh members? If you tax our barley, we will tax your cattle; and certainly the reaſons for each, if weighed in the ſcale of public juſtice, would have been nearly of the ſame gravity.

It is not an object of this work to examine public meaſures farther than they affect the intereſt of agriculture; and, in this point of view, a few obſervations will not be irrelevant, on the income or property tax, which will bear hard on many farmers. We do not mean to inquire, whether in this caſe the tax is not altogether preciſely the ſame thing as a new land tax, which ought to have been impoſed in the ratio marked out by the articles of Union. But, leaving this point to political inquirers, we confine our remarks to the tax, in ſo far as it operates upon the poſſeſſors of land; and here it may be pronounced to be partial and oppreſſive in ſeveral reſpects.

In the firſt place, it is partial, becauſe impoſed in different degrees upon the ſame claſs of people, ſome being rated at 1d. others at 2d. 3d. &c. and many at 6d. per pound of the rent paid by them to the landlord, while every farmer below 60l. eſcapes altogether. Now, a ſcale of this kind is not uſed in the collection of other public burdens, but every perſon pays according

cording to his means, or, more ſtrictly ſpeaking, according to his abilities. If the tax was meant to be upon rent, no difference ought to have been made in the *per centage*, whether the rent amounted to five pounds, or five hundred pounds: The conſequences of ſuch modifications and exemptions will occaſion an impoſition of freſh burdens at an after period, beſides opening a door to frauds and abuſes.

The tax upon the poſſeſſors of land may, in the ſecond place, be viewed as oppreſſive, becauſe it falls heavieſt upon thoſe who are leaſt able to pay it. Every man who poſſeſſes under an old leaſe, conſequently paying leaſt rent, will be ſlightly taxed; while thoſe who have lately taken farms, and have hard bargains, will pay according to the rack rent; which, in many inſtances, now triples the ſums paid by the old poſſeſſors. But why tax a farmer according to his rent? Merchants and traders might, with equal propriety, be taxed according to the amount of their invoices. No other claſs of the community can be charged a halfpenny, unleſs upon actual income of one kind or other; but the farmer muſt pay, whether he enjoys a halfpenny of income or not.

Beſides, it ſtrikes us, that being a tax impoſed upon landed property, it ought to be paid by proprietors themſelves during the currency of exiſting leaſes; and here we believe we are correct, unleſs the tax had been impoſed in a different ſhape, that is, upon actual income. An *ex poſt facto* per centage upon landed rent, is exactly the ſame to the farmer, as if the rent itſelf was raiſed to that extent; therefore, unleſs in caſes where the tenant is taken bound to pay public burthens, the tax, in ſtrict juſtice, ought to be defrayed by proprietors. In after bargains, it is plain that the tenant will calculate upon the extent of this tax, and form his offers accordingly.

It is not altogether the amount of the preſent tax which calls for the attention of farmers, but it is the principle upon which it is impoſed. The ſame power that enacted a payment of 6d. per pound this year, may afterwards augment it to one, two, or three ſhillings, or any other ſum, as public neceſſity requires. If it were merely an income or property-tax, we would have been ſilent, becauſe it would not have been levied upon any perſon, unleſs poſſeſſed of income; whereas, in the preſent ſhape, a farmer is liable, whether he have income or not, and may be forced to ſacrifice his capital ſtock piece-meal, in order to defray it. When a tax of two ſhillings was firſt laid on each horſe employed in agriculture, few people thought much of the matter; but now, when raiſed to twelve ſhillings and ſixpence, the ſubject is more ſerious. As neither of theſe taxes can be laid upon purchaſers (which was held to be a valid objection againſt

the ſhop-tax), it is our decided opinion that both ſtand in need of reviſal. In fact, a direct tax upon corn, cattle, ſheep, &c. would have been more eligible; for, like the auction tax, a part of it might have been thrown upon the purchaſer. The farmers, we are firmly convinced, are well diſpoſed to bear their juſt ſhare of every public burthen; but why a diſtinction ſhould have been made in the mode of aſcertaining their property, is a problem which we leave others to ſolve.

A bill for augmenting the ſalaries of parochial ſchoolmaſters has lately paſſed through both Houſes of Parliament; and we rejoice that the ſituation of this uſeful claſs of men will now be conſiderably meliorated. Scotland, we believe, is the only European country where ſuitable attention is beſtowed upon educating the lower ranks; and, as remarked in a former Number, from this ſource may be traced the characteriſtical features of our countrymen. The advantages originally derived from the old law, owing to the depreciation of money, were however in a great meaſure loſt, and the alteration now made was become abſolutely neceſſary. On this occaſion, the public were much obliged to the Lord Advocate of Scotland and Mr William Dundas, both of whom beſtirred themſelves in accompliſhing this important and truly national object. N.

Extracts from Private Correspondence.

SCOTLAND.

Aberdeenſhire Quarterly Report.

Since the date of laſt report, the weather has on the whole been dry; and any rains which have fallen, have been ſucceeded by cold high winds. Even in the two laſt weeks of June, when the heat through the day was very great, froſt commonly prevailed at night, and prevented that benefit to vegetation which might have been expected from the moiſture that had previouſly fallen. Bear and barley, eſpecially upon land that had been fallowed, or carried turnips in the preceding year, preſent a moſt unpromiſing appearance; oats look better, and if the weather would diſplay more moiſture, might ſtill yield a good crop of grain, though it is to be feared they will be defective in point of fodder. Potatoes and peas, till within theſe eight days, have been rather backward; and clover and rye graſs, except upon rich fields, will yield a very poor return. Paſture graſs has not admitted of the uſual quantity of ſtock, and it is to be feared will not make a good return this ſeaſon.

The ſtorms from the north have been ſo ſevere as to overturn the trees upon many acres of land which ſtood the blaſts of former years, and were in a healthy and freſh condition at the time. The weather has

has admitted ſufficient work to be given to the fallow and turnip land; and where the fields have not been cleaned in a perfect manner, the poſſeſſors have either been negligent, or have had too much in hand. Owing to the want of moiſture, many of the fields ſown with turnip have not vegetated; and it is to be remarked, that the moſt imperfect braird has been gained, where the previous work was moſt perfectly performed.

Cattle, eſpecially thoſe of the beſt kind, maintain their former high prices; but ſales have been rather heavy of late, owing to the ſcarcity of graſs. Oats, and oatmeal, have experienced a conſiderable riſe ſince laſt report; and the quantity of the former on hand is but trifling. The ſtack-yards are much about the ſize as uſual at this ſeaſon of the year; and barley, or bear, conſtitutes the prominent part thereof.—*July* 11.

Selkirkſhire Quarterly Report.

The weather took an unfavourable turn about the 18th April, and high winds with heavy ſhowers of ſleet and ſnow prevailed for ſeveral weeks thereafter. It was apprehended that the lambing ſeaſon, upon account of theſe circumſtances, would be unfavourable; but owing to the forwardneſs of vegetation, and conſequent good condition of ſtock, leſs loſs has been ſuſtained than might have been apprehended.

The grain crops may be about ten days later than in an average of years. Oats experienced cold weather in tillering; conſequently remained long in what we call the *ſpaining braſh*. Barley, on loamy haugh lands, appears to be equal to an average; but on the higher grounds, the aſpect is unpromiſing. From imperfect ſeed being ſown in ſeveral places, the braird is very defective; which proves, that great caution ought to be uſed in *ſeeding* the higher diſtricts, after ſuch a ſeaſon as we experienced laſt year.

The dryneſs of the weather has been favourable to the working of turnip fallows, but the ſame cauſe has occaſioned the braird of thoſe firſt ſown to be nearly deſtroyed. Since the introduction of turnips into this country, much benefit has been derived from their cultivation. A few years ago, though the farmers had their arable ground in the moſt approved rotation, yet as they applied their turnip crop to the feeding of caſt or *yeld* cows, which paid them but indifferently, the advantage was little in compariſon with that now gained. The profit is double in the new method of uſing turnips, which is, to give them to young ſheep upon the ground betwixt the old and new graſs, excepting a few reſerved for the young cattle. By this practice, and omitting the milking of ewes, an addition is made to the quantity and quality of wool, and to the health and beauty of the ſeveral animals.—*July* 13.

Extract of a Letter from the diſtrict of Carrick, Ayrſhire, July 14.

'The weather, during the latter part of April, and nearly the whole of May being uncommonly cold, with violent and boiſterous north and north-weſt winds, and frequent ſhowers of hail and ſleet, did material injury to the young crop, by chilling and even deſtroying the braird.

The new husbandry being only in its infancy in this district, our staple crop may be said to be oats, with a small proportion of wheat, and some bear and barley. The oats being in a state to feel the effects of the cold stormy weather, are in many places rather thin, and at least a fortnight behind the usual time of shooting. The almost total want of snow during winter, and exposure to severe naked frost, has also rendered the wheat generally thin, which is the case too with the sown grass in all heavy lands, especially if they are any way high lying or exposed. The bear appears to be the most vigorous and prolific crop; but which, from the operation of the new malt act, will probably turn out of least account to the farmer. Indeed, except for family uses, it is doubtful if there will be any sale for it whatever. It is not to be supposed that a public brewer or distiller will choose to pay 26s. 2d. of duty for 8 bushels of Carrick bear, when he can have the same quantity of the best English barley for only 5s. 4d. more. We must of necessity have public burdens, but they should be laid on wisely and impartially. The weather, since the latter end of May, has been uncommonly fine. A great deal of thunder happened about that time, which purified the atmosphere; and being succeeded by heat, and kindly refreshing showers, recovered the crop more than could have been expected. The stalks, though rather thin, appear to be in a strong and healthy state; and such of them as have shot, the heads seem to be sufficiently large and full eared; which is all that can be known of them in their present state. Much depends upon the weather during the ensuing five or six weeks. If it continue favourable till the ear is come to maturity, we will, notwithstanding of its thinness, have nearly an average crop.

'The grain markets, during winter and spring, remained pretty steady. The oat meal sold from 17s. 4d. to 18s. 8d., which is now advanced to 20s. the boll of 8 stones Dutch weight; barley meal was at about 1s. the peck; oats from 16s. to 18s. 6d. the Ayrshire boll, consisting of 8 bushels, now 20s. and 21s.; bear sold at about 25s.; and the barley about 2s. 6d. and 3s. more.

'Sheep and black cattle have gone on increasing in price since last year, and are out of all proportion high. A reduction must unavoidably take place, otherwise the luxury of butcher meat will be confined solely to the higher ranks; and those, of course, whose hard labour requires strengthening aliment most, must be utterly deprived of it. As a counterpoise, however, to this, the price of farm labour has kept pace with the price of every thing else. It is a most happy circumstance, that, in the physical, as well as moral and political worlds, things often operate their own remedy, without any foresight or efforts of ours. There is a *ne plus ultra* in human affairs, which sets bounds to the avarice and ambition of man, as well as to his physical powers.

'The potato oats are coming very much into use, and in general succeed remarkably well. They are both more prolific, and yield more meal, while one half seed nearly answers to sow the same extent of ground which it takes of the common oats sown in the country. Their

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liableneſs to ſhake, is the only diſadvantage to which they are expoſed in this ſtormy climate.'

Roſſſhire Quarterly Report.

DURING the month of May and the greateſt part of June, we experienced a cold continued drought, which checked vegetation much; but, for ſome weeks paſt, the weather has been warm, and though ſtill dry, the crops have made a rapid advance. If the preſent weather continue a few weeks longer, the harveſt will not be a late one; but, from the long drought, ſtraw will be very ſhort in many places, and hay but a ſcanty crop. Potatoes have a promiſing appearance. Much depends upon the harveſt months for perfecting and making all crops productive. All that can be ſaid at preſent is, that our fields wear the appearance of a fair average, except in ſome few places that have ſuffered by the drought.

Lean cattle have ſold remarkably high. In the month of May, from 15 to 20 *per cent.* was obtained above laſt year's prices; they are, however, now a little lower, and the demand is not ſo briſk. The rage for ſheep farming, which extends over this and the neighbouring counties, has very much raiſed the price of young ſtock. Lambs of the black-faced breed ſold at Fort-William market from 10s. to 12s.; and hogs from 18s. to 21s. There were few wedders and ewes ſold; the breeders were aſking for them in proportion to the extravagant prices obtained for young ſtock, and the buyers would not give ſuch prices. Wedders, however, are expected to ſell from 28s. to 30s.; but we entirely depend upon the ſouth country markets, and muſt be ruled by them. —*July* 14.

Wigtonſhire Quarterly Report.

FROM the date of laſt Report till the end of May, we were viſited with uncommonly cold, and ſometimes ſtormy weather, inſomuch that both the corn and graſs crops during that period made but little progreſs. Since that time, however, circumſtances have changed; the weather has been favourable both for the purpoſes of vegetation and the preparation of the ground for the turnips—days of moiſt and dry ſunny weather ſucceeding each other in ſuch a manner as to be equally ſuitable to light and heavy ſoils; ſo that our crops, though late, in general will be good. Rye-graſs hay, the harveſting of which is well advanced, in ſome ſituations, and quite cloſed, ſeems to be a very fine crop; nay, ſo plentiful, that ſome of our inn-keepers have refuſed to lay in their ſtock at 6d. per ſtone of 26lb. ready laid down for ſtacking.

Paſture graſs is alſo exceeding good throughout the whole county: but perhaps, on account of the price of cattle, which is ſtill extravagantly high, to which we may add the general ſcarcity of money, our paſtures are lighter ſtocked than uſual; a circumſtance by no means againſt our agriculture. Can there be any doubt of one beaſt well fed paying better than three pinched in food? And what vaſt difference of

appearance have been ſeen of two fields of paſture in the early part of ſpring, where one in the preceding fall had been totally picked to the roots, and the other left with a good foggage? It is a certain fact, that light ſtock invariably tends not only to make a heavy purſe, but to improve and enrich the ſoil. Potatoes have a promiſing appearance; but, like other crops, they will be late. In no ſeaſon has our turnips been ſown under more favourable circumſtances than the preſent; but, from the little progreſs made as yet in their growth, no certain opinion can be formed of the crop.

Prices of grain have advanced but very little ſince our laſt. We have, however, ſtill a conſiderable ſtock on hand, and the demand is very limited. Butcher meat continues much the ſame as in our laſt. Wool, conſiderable quantities of which is carried to Ayrſhire, and alſo exported to England, is ſold at 13s. to 16s. per ſtone of 26lb. The quality is fit for various purpoſes—ſtockings, flannels, plaidings, carpets, and coarſe cloths.

It perhaps may not be improper here to remark, that our late turnpike act will have a wonderful tendency to advance agriculture, by turning the Commiſſioners minds to promote communication to the moſt remote ſituations by an eaſy line of road. Indeed, it is only doing the gentlemen common juſtice to obſerve, that they have ſhown an aſtoniſhing deſire for an immenſe number of *plans of new lines* of roads; but, (as we believe is the caſe almoſt everywhere), whether from the *forms* they have to go through, or from whatever other cauſe, it is long before they fix on that which appears to be beſt. For the ſake of diſpatch, it were to be wiſhed all unneceſſary forms and debates were *ſhortened;* that only real patriots were choſen our Commiſſioners on roads, whoſe diſintereſted views would invariably lead to the public good.——15*th July.*

Berwickſhire Quarterly Report.

THIS quarter was unſeaſonably cold, with a continued drought, from its commencement till the beginning of June, when we had two ſhowery days, ſucceeded by warm droughty weather. On the 7th of July, we were favoured with a fine moderate rain, which came moſt opportunely for the recovery of the corn fields, as (excepting the dry burning ſoils), they had but juſt begun to feel the influence of the drought.

The ſeaſon has been uncommonly favourable for preparing turnip fallows; and the early ſown fields have a moſt promiſing aſpect: Of thoſe ſown towards the end of June, many fields made a partial braird, but have filled up ſince the rain.

Paſturage, though it could not be called abundant, afforded a tolerable good bite upon the deep ſoils, after the rains in June; upon thin light gravels, it is looking quite brown. Hay harveſt has but juſt commenced; ſo that the ſelling price cannot yet be aſcertained: If we may judge, however, from the appearance of the fields, the crop is likely to fall ſhort of an average.

Wheats

Wheats have a healthy appearance; but many of the winter fields are thin on the ground. Early ſown barleys look well; ſome of the late ſowings are not ſo promiſing. Oats are generally good; though this, as well as the other white crops, will in ſome caſes prove deficient in bulk, if drought continue to prevail in the interval between and harveſt. Beans are an unequal crop, ſome fields being remarkably good, while others are very indifferent; the ſame may be ſaid of peas. The fine warm weather, and the forwardly ſtate of the crop at preſent, ſeem to promiſe that harveſt will be early. Potatoes have a thriving appearance.

The prices of lean ſtock ſtill keep up, having, upon the whole, rather exceeded thoſe of laſt year. Fat has experienced little variation during this quarter. Wool meets with a dull ſale, and prices are about 10 *per cent.* lower than laſt year.——*July* 16.

Letter from Glaſgow, July 16th.

'The greateſt part of our oats were ſown in fine order; but the remainder, however, met with a very different reception. From about the middle of April till the latter end of May, we had a continuance of hail and rain, or cold drought. In conſequence thereof, the crop about the end of May, had but a very poor appearance. About the beginning of June, the weather became more moderate, and ſince the middle of that month it has been fine and warm, with gentle ſhowers of rain. This change has had the deſired effect on the crop; for excepting in ſome places where it has been injured by the cut-worm, the fields now look extremely well, and are as far forward as we remember at this ſeaſon of the year.

'Our hay crop will not be very abundant; it will however be of excellent quality, ſhould the weather continue good until it is ſecured, which we think will not be long.

'Wheat has a fine appearance, and although not thick upon the ground, yet, on the whole, promiſes to be a fine crop. Barley and bear look very well, but there is very little of theſe grains ſown in this neighbourhood, a great part of our farmers having ſown potato oats in their ſtead, which have a good appearance, and promiſe to pay well for the change.

'Potatoes, particularly thoſe on fine light land, look very well; and even thoſe upon wet, cold ground, have much improved in theſe two weeks paſt. If the weather continue good, they will turn out a fair crop. Little of the curl has been diſcovered amongſt them.

'We have had a conſiderable importation of grain from Ireland and America, through the ſummer months, and large quantities are ſtill looked for, which has kept our market ſteady. Little alteration has taken place in prices, for theſe three months paſt, oats excepted, which have advanced about 3*s.* per boll.'

State of Glaſgow Markets, July 16th.

American wheat,	31*s.* to 33*s.*	per boll of 240 libs.	Engliſh.
Iriſh ditto,	28*s.* to 30*s.*	ditto.	ditto.

Dantzic

Dantzic ditto,	32s. to 34s. per boll	Linlithgow measure.	
Britiſh ditto,	26s. to 33s.	ditto.	ditto.
Engliſh barley,	21s. to 23s.	ditto.	Stirling ditto.
Scotch barley and bear,	12s. to 17s.	ditto.	ditto.
Britiſh oats,	16s. to 20s.	ditto,	ditto. ditto.
Iriſh ditto,	16s. to 21s.	ditto.	Renfrew ditto.
Engliſh beans,	22s. to 23s.	ditto.	Stirling ditto.
——— peaſe,	22s. to 23s.	ditto.	ditto. ditto.
Scotch beans and peas,	19s. to 21s.	ditto.	ditto. ditto.
Oat meal,	19s. to 21s.	ditto. of 140 lib. Engliſh.	
Ditto ditto, by retail,	15d. to 16½d.	per peck of 8 lib. Dutch.	
New hay,	7d. to 8d.	per ſtone.	
Old ditto,	8d. to 9d.		
Straw,	3d.		

Dumfrieſſhire Quarterly Report.

The frequent blaſts of north-weſt winds, in the month of May, with the chillneſs and froſts which generally attend them at that ſeaſon, gave an unpromiſing appearance to crops of every kind, but more particularly to thoſe upon clay or heavy ſoils; and, upon wettiſh and moſſy grounds, they were in many places irrecoverably loſt, partly, it was ſuppoſed, by froſt winds, but more evidently by the grub, or ſmall light coloured ſnail, which prevailed in very extraordinary numbers, in May and in the beginning of June. It was not in cold and moſſy ſoils alone that theſe vermin proved deſtructive: Upon light and open ſoils, and upon clover ſtubble, where it would ſeem they had been generated in the autumn before, they in ſome places eat up totally the braird, after being fully ſet in the third leaf.

Happily, however, theſe loſſes, though ſevere on individuals, were not of ſuch extent as to affect the general crop of the country. The doubtful appearances in May gave place, after the ſeaſonable rains in June, to better expectations; and the warm, clear weather which ſucceeded the rains, and ſtill continues, ſeems to promiſe an early harveſt. Wheat, even in the light ſoils of Dumfrieſſhire, is a ſtrong crop, and now in ſuch a ſtate of health, and abundance of flower, as gives cauſe to hope that it may be well filled. Barley, though long backward in heavy ſoils, now looks well; and oats are generally good. The Frieſland, or ſmall early oat, is moſtly ſhot, and ſeems well headed; but it is remarked, that the potato oat, though ſeemingly healthy, is proportionally further back than in laſt and former years. Turnips ſown by the 24th June are forward; thoſe ſown later are very weak, but, as they are regular above ground, may ſtill be a uſeful crop.

Hay of ſown graſs is the moſt abundant crop remembered in this county, and is now moſtly in pikes or tramped ricks. The further back the ſpring growth, the crops ſeemed the weightier; even thoſe eat down till the end of April, having had a great growth after the rains fell. This points out to many farmers, unpractiſed in feeding, the additional advantages to be had by ſown graſſes, eſpecially upon warm

and

and dry ſoils, where they may be paſtured in the ſpring, with ſheep or light young cattle, with ſafety and great advantage. The paſtures, natural and of ſown graſſes, have been remarkably good for ſeveral weeks paſt, and have generally been capable of carrying a third more than an ordinary ſtock.

The demand for ſheep and cattle of all kinds, as might have been expected from the ſtate of the country, has been conſiderable, and the prices without much alteration. At the great fair of Staigſhaw-bank, indeed, there were diſappointments, owing to the temporary ſtop of a Bank in that neighbourhood, which occaſioned ſome embarraſſment. The fair was thought to be over-ſtocked with Highland cattle, which even gave high prices, with little or no loſs to the ſellers. Wedder ſheep, ready to be laid on feeding paſtures, were in great demand, as were young ſheep for breeding. Wedder hogs, indeed, being numerous, were not in ſuch requeſt, and were reckoned at leaſt 3s. lower than laſt year. The price of wool is not yet quite aſcertained in this quarter. The demand is not at all leſſened; and the ſtaplers are anxious to engage their quantities, but ſhy to fix the prices.——*July* 16.

Eaſt-Lothian Quarterly Report.

Perhaps few ſeaſons have permitted the ground to be ſo well wrought as the preſent one; for, except on the 3d and 10th of June, and 7th of July, very little rain has fallen in this county ſince the beginning of March. However beneficial ſuch a tract of dry weather has been to farm culture, yet it has certainly ſtopped the growth of corn and graſs very much. Hay is a ſcantier crop than known in any year ſince 1785; and the paſtures have only, in few inſtances, admitted a decent ſtock. The grain crops, though inferior in bulk to thoſe of laſt year, are, on deep ſoils, ſuperior to what might have been expected from ſuch adverſe circumſtances; and wheats, in particular, promiſe an abundant return, if mildew is avoided.

The corn markets have advanced during the quarter, in the articles of oats and wheat; but barley continues uniformly to have a dull ſale, while the quantity on hand is conſiderable. Good wheat has regularly brought a higher price in Haddington market than what it has done in Marklane; which is a proof that the quality thereof is not inferior to the beſt Engliſh growth. Indeed, Haddington market, through the whole ſeaſon, has matched any in Britain; and the demand has generally been fully equal to the quantity preſented.

Thoſe who ſowed turnips before, or immediately after the rains on June 10th, have a fine ſhow of healthy plants; but as the weather in a few days became very dry, ſuch fields as were ſown after the middle of the month have not a very promiſing aſpect. In moſt caſes, however, a tolerable braird is got, and a ſmall ſupply of moiſture will ſoon puſh the young plants forward. Potatoes, in general, look well; and, where care was beſtowed to procure freſh ſeed, few curls are diſcerned.

For

For ſeveral days paſt, the weather has been remarkably warm; conſequently favourable to the wheats which were in bloſſom. The ſpring ſown wheats promiſe to be but a few days behind the winter ones at harveſt; but, owing to the ſeverity of the drought, the growth of the former have been greatly ſtinted, eſpecially upon gravelly ſoils, or thoſe of a light deſcription.——*July* 20.

Mid-Lothian Quarterly Report.

Since laſt Report, the weather has been almoſt uniformly dry, and latterly very hot; but, from the uncommon goodneſs of the ſeed time, and fineneſs of the mould, the corn crops look much better than might be expected. Wheat has mended conſiderably. Many fields, however, are ſmall in the ſtem, and conſequently will turn out thin. Upon the whole, although there are few or no fields of any ſpecies of grain that can be deemed rank; on the contrary, many fields are very ſhort; yet, with a moderate quantity of rain, and an exemption from high winds, there is every probability that the crop will prove productive.

However, ſuch a long continuance of drought has burnt up the paſtures, and hay is univerſally a ſcanty crop, but, from being ſo well got, is excellent in quality. Indeed, the preſent crop of hay will be better worth one ſhilling per ſtone to the conſumer, than the generality of laſt year's crop was worth the low prices at which it ſold.

From the great loſs ſuſtained laſt year, by the ſhooting of turnips, many people have been induced, this year, to delay ſowing to a later period of the ſeaſon; but, where this has been adopted, the turnips have either come up partially, or failed entirely. It is an important fact, that ſeems not to be ſo generally underſtood as the ſubject merits, that the ſhooting of turnips does not depend either upon late or early ſowing; but is owing to the mode of raiſing the ſeed.

When the ſeed is raiſed from untranſplanted roots for a ſucceſſion of years, the turnips become foul in the neck; and, if perſiſted in, will degenerate ſo far, and have ſuch a tendency to run into ſtalks, that they will infallibly ſhoot, at whatever time they are ſown; for this tendency evinces itſelf ſoon after the young plants are ſingled out in the drill, by three or four ſtems ſpringing from the ſame root, which, in many inſtances, prevents the turnips from ſwelling; or, if they do ſwell, they are more open, ſpungy, and leſs nutritive, as alſo more liable to be injured by froſt, than ſound, compact, well formed ones are. This evil can only be remedied by thoſe who raiſe the ſeed making it their buſineſs to tranſplant whenever the firſt inclination to foulneſs in the neck of the turnips occurs.

The ſummer fallows have been got into a high ſtate of cultivation; but, from want of moiſture it has proved an arduous taſk to prepare the dung properly for them. Some farmers are at pains to drive water to their dunghills, but many others cannot adopt the expedient, for want of it,

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The prices of cattle and ſheep keep as high as ever at Linton market. The current price of hogs was from 16s. to 18s.; and lambs, at Biggar fair, from 8s. to 10s. 6d. a head. The principal demand for both was to the north country. Hitherto, fat cattle have been bought by the butchers as ſoon as they were fit for the ſhambles; and have ſold at 10s. 6d. and 11s. per ſtone Dutch, ſinking the offal; Beef and Mutton at 8d. per lib. 17½ oz. to the lib.

The number of Engliſh dealers who commonly buy up cattle in the north country, have been fewer than uſual, owing, it is ſaid, to the failure of ſome country Banks in the ſouth. But this want has been made up, by Scotſmen carrying on that buſineſs, to a greater extent than uſual, themſelves; ſo that, hitherto, there have been no want of purchaſers; and there is every reaſon to believe that the demand will increaſe, whenever the quantity of keeping becomes more plenty.—*July* 20.

Argyleſhire Quarterly Report.

The end of ſpring, and the beginning of ſummer, did not promiſe very favourably to the crops of this county. Fields that were wet and cold, ſuffered much loſs from the grub-worm; an inſect, which, if we may judge from its viſible effects, ſeems to have moſt vigour in that ſort of cold and wet weather which benumbs other tribes of animals and inſects, and renders them torpid and inactive, or altogether kills them. The numbers of theſe vermin that were to be ſeen in many fields this ſeaſon, when a handful of earth was turned up, was very alarming. It is probable that a heavy roller drawn over ſuch ground as would admit of it, would deſtroy a very great proportion of them. The experiment, at leaſt, would be attended with no great expence or trouble.

But, notwithſtanding the partial depredation of thoſe worms, and the unpromiſing appearance of many fields in the beginning of ſummer, the crops in general look now extremely well, and the worſt fields have wonderfully mended ſince we have been viſited with warm weather and and refreſhing ſhowers. The harveſt, however, will not be early.

Cattle of all kinds continue to ſell at very high prices, though ſomewhat declining of late. About Whitſunday, ſome ſtocks of ſheep in this county, ſold ſo high as from 28s. to 30s. the ewe and lamb. The prices of wedders and of wool, are generally regulated in this county by thoſe of the Fort William markets. The temporary check experienced by our manufactures, muſt of courſe affect the graziers. Meal continues ſtill at a moderate price, though a little advanced, being 1s. 6d. the ten lib. Butcher meat from 6d. to 7d. the Engliſh lib. Butter from 13d. to 14d.; and cheeſe (new) 4d. the Tron lib.—*July* 16.

Tweeddale Quarterly Report.

About the 18th April, the weather changed from almoſt the mildneſs of ſummer to the ſeverity of winter, and continued to blow, ſnow and

and hail with few intermiſſions, for ten days thereafter; during which time, little could be done in potato and barley labour. As the lambing time then commenced, we were under great apprehenſions of ſuſtaining a heavy loſs from the inclemency of the weather; but the good condition of the ſheep prevented our apprehenſions from being realized.

Although there was much doubt about the ſoundneſs of ſeed of laſt crop, yet every kind of grain hath planted thick enough. A good deal was purchaſed from the coaſt counties, which, with the old grain then on hand, went far to ſow the preſent crop; but, even where doubtful ſeed was uſed, there appears to be but little deficiency. At preſent, the crop promiſes to be good; and if the remainder of ſummer continues to be favourable, harveſt will not be very late. Early ſown turnips look well, but thoſe ſown in the latter end of June, are planting very irregularly.

The markets for live ſtock, are ſtill as high as ever; and the demand for good horſes, eſpecially for the Yeomanry, occaſions many purchaſers. Wool has rather a dull ſale, the preſent uncertain ſtate of public affairs preventing the ſellers from condeſcending on poſitive prices. Wedder hogs have ſold from 15s. to 18s. 6d.; ewe do. from 13s. to 16s., the latter being much in requeſt. Thoſe ſold, are generally ſhots; the top ewe hogs being reſerved by the breeders for keeping up their ſtocks. Grain of all kinds has lately advanced conſiderably in price.——*July* 12.

Letter from a Farmer in Roxburghſhire, July 16.

'During the month of May we experienced very cold weather, and, owing to the ſeverity of the drought, turnip land did not work kindly. Some fine rains in the beginning of June improved both corn and graſs conſiderably; but ſtill appearances are not very flattering. Winter wheats are thin. Oats very ſhort, and barleys threaten to be much below an average. The firſt ſown turnips brairded quickly, but are now rather at a ſtand; thoſe laſt ſown are making little progreſs. Hay is very light; and potatoes, particularly thoſe planted early in the ſeaſon, are much infected with the *curl*. The grain market continues dull, and ſales are ſlowly made. Beef and mutton for ſix weeks paſt have ſold well, but lean ſtock at ſtill higher prices, which does not augur a reduction at the end of the ſeaſon. At the fairs of Yetholm and Earlſton, the demand was conſiderable; but the recent ſtoppage of the Newcaſtle and Berwick Bank occaſioned great inconvenience to the purchaſers, much paper being ſhown that would not paſs with the ſellers. Wool has dropped in price. Combing wool about 2s. per ſtone, and ſhort fine kinds rather more.'

ENG-

ENGLAND.

Letter from a Scots Gentleman, dated Brighton, May 28.

'I had a pleaſing jaunt to London; but was diſappointed in my intentions of going to the Continent, by the alteration which took place in the political ſituation of the country. During my ſtay at Dover, I took occaſion to viſit ſeveral parts of the County of Kent, the ſoil of which is generally incumbent upon chalk. The interior part of the county is full of wood, the ſurface riſing into gentle hills, while the vallies are only cultivated. When you come within eight or ten miles of the coaſt, there is ſcarce any woodland; but the whole is either cultivated, or ſuffered to remain in green paſture; and many parts of the coaſt land conſiſt of excellent ſalt marſhes, which are drained with the greateſt care. The crops, in general, look miſerably thin; and as for paſtures, they have few or none, tares and artificial graſſes ſupporting the ſtock. Peas and beans are the beſt crops of Kent at preſent; they are ſown in drills, and kept exceeding clean and neat. The weather has been exceſſive cold all this month, froſty during the night, and cold winds in the courſe of the day.'

Norfolk Quarterly Report.

The ſcience (if the expreſſion is allowable) of Agriculture is now very judiciouſly deemed a grand object of national importance, whilſt the adoption of more effectual methods for its encouragement and improvement, and the many ſpeculations on the ſubject, are very wiſely rendered ſubſervient to the purpoſes of practical huſbandry. Though the path, which leads to ſpeculations on the probable produce of the growing crop, is extremely liable to lead an amateur aſtray, and perhaps is one of the humbleſt in which he can tread, yet, if due caution is uſed, he will not often wander far out of the right way, and may probably pick up ſome reflections in his walk, that will not prove utterly deſtitute of intereſt, nor wholly void of utility to future experimentaliſts. If, therefore, the following obſervations, made with ſome degree of attention, are thought worthy of inſertion in your Magazine, they are very much at your ſervice.

The ſeaſon for ſowing the ſpring corn and pulſe proved extremely favourable; the land pulverized well, was ſufficiently moiſt, and the corn vegetated rapidly and fully. Some froſty mornings, however, intervening in the month of May, rendered the proſpect leſs inviting. The early ſown fields began to wear a yellow, ſickly appearance; but fine mild ſhowers ſoon falling, diſſipated all apprehenſion; and the continuance of moiſt weather, through the month of May and the early part of June, has given us at this time the flattering proſpect of a more than average crop of barley, oats, and peas and beans; though, where it might leaſt have been expected, on ſome light ſoils, there appears a conſiderable deficiency; the inceſſant and extremely cold rains almoſt ſtarving the plant to death, ſcarce a friendly cheering ray of ſun having made its appearance during the month of May and beginning of June.

Sowing

Sowing wheat upon the flagg is very much practiſed in this county; but, owing to the long and ſevere drought after the late harveſt, and the conſequent impoſſibility of ploughing up the graſs leas, in the early part of the ſeaſon, this operation was performed unuſually late; and the ſevere froſt, finding the plant throughout the winter unprotected by a friendly covering of ſnow, injured it very materially. The plants upon the light lands ſtand very thin, conſequently liable to ſtill farther injury from mildew and high winds, and not at preſent to be eſtimated at more than two thirds of a crop; but upon the heavy lands the wheat certainly promiſes to be very good. No part of the harveſt can be early.

The winter vetches did not eſcape with leſs injury than the wheats; but the ſummer vetches promiſe, however, a luxuriant crop, that may make amends for the penury of the elder branch of the family. The artificial graſſes, though a full plant, are very ſhort, and will yield but a ſcanty crop of hay.

Turnip ſowing will be chiefly finiſhed in the courſe of this week: ſome, early ſown, owing to heavy cold ſhowers, have failed: the lands muſt be ploughed and ſown again: but the weather, during the laſt fortnight, has proved particularly favourable, and the ſeed vegetates very expeditiouſly; a moſt deſirable circumſtance, as the plant acquires the rough leaf early, and by that means ſoon bids defiance to one of its moſt formidable enemies, the fly. Various are the manures uſed, and equally various the modes in which this valuable plant is cultivated: It certainly deſerves all the attention it receives; for if it fails, very ſmall are our hopes of a productive crop of barley; we may juſtly ſay it is the *ſine qua non*. The drill ſyſtem is very prevalent, at diſtances of ten, twelve, and eighteen inches; the latter are ſometimes moulded up with the plough, when they have nearly attained their full growth, to preſerve them from the froſt; and when the operation is ſkilfully performed, it is generally attended with very encouraging ſucceſs. The Swediſh variety of the ſpecies is now much cultivated and eſteemed; the good qualities aſcribed to it are theſe—it is very firm, and conſequently heavy; more nutritious than the common ſort; bids defiance to the ſevereſt winters, ſeldom or never rotting, though previouſly injured by the tread or bite of beaſt or game, the latter being particularly fond of it, and will travel a conſiderable diſtance in ſearch thereof, refuſing to taſte the common ſort in the way; a preference which, in the neighbourhood of much game, is a ſerious inconvenience to the grower. Oil cake is a manure very frequently uſed for turnips, ſown either broadcaſt, a ton to four acres, and ploughed in before the ſeed is ſown; or by a drill machine, which is made to deliver, from different cups, the cake reduced to duſt, and the ſeed into the ſame funnel; thus lodging the ſeed in the midſt of a bed of manure; the probable conſequence and great advantage of which is, quick vegetation; the beſt ſecurity, as before obſerved, againſt the depredations of the fly. A conſiderable

ſaving

ſaving of manure is alſo in this mode another object of attention, a ton being ſufficient for five or ſix acres.

The irrigators are certainly a claſs of valuable agriculturiſts, and deſerving of every poſſible encouragement, even allowing that they raiſed only two blades of graſs, where one grew before; but they produce an increaſe, in many inſtances, of more than a hundred fold; and, by firſt underdraining, and afterwards irrigating, have converted many hundred acres of mere bog, where the foot neither of man nor beaſt could tread ſafely without the utmoſt precaution, into firm ground, and produced luxuriant and wholeſome herbage for the flock and the herd. Want of water has, however, this ſeaſon, in many caſes, much circumſcribed their operations; the ſprings having been ſeveral months paſt ſo extremely low, as not to afford the neceſſary ſupply; a circumſtance which alarms alſo other deſcriptions of agriculturiſts, it being an opinion pretty generally adopted from obſervation, and not deſtitute of rational ſupport, that when the ſprings are low, the price of corn is low alſo; and *vice verſa*, when the ſtrong lands are ſaturated with water, they become difficult to be tilled, generally produce a meagre crop, inferior both in quantity and quality; whereas, the weſtern part of this county rarely complains of too much moiſture.

Upon the whole, as the barley, oats, peas and beans promiſe a full average crop, and as there will at harveſt remain a conſiderable ſtock of old wheat on hand, though the preſent appearance of the latter on the light lands is by no means flattering, it ſeems highly probable, that none of theſe articles will obtain high prices in the following winter: Indeed, an apprehenſion that they may not reach a price equal to the reaſonable hopes of the farmer is more dreaded; I ſay dreaded, for ſhould any cauſe ariſe ſufficient to damp that enterprizing ſpirit, which has lately been ſo eminently, and ſo univerſally exerted, we may become dangerouſly dependent for a neceſſary ſupply of the ſtaff of life on foreign countries. It requires a peculiarity of circumſtances and ſituations, ſuch as fall not to the lot of the generality of agriculturiſts, to induce, or indeed to juſtify them in an eager purſuit of an unprofitable ſpeculation.

The price both of lean and fat ſtock of all deſcriptions continues high.

Wool, though the war has caſt a damp upon trade, is expected to maintain a good price: The grower hopes to receive for his Norfolk and Southdown, from 50s. to 54s. per tod of 28 lib.—*July 9.*

Lincolnſhire Quarterly Report.

THE ſeveral crops of corn and hay in this county may, on the whole, be reported as promiſing to yield the farmer an abundant return: indeed, the ſeaſon has been remarkably favourable for our low lying lands, which are generally of excellent quality, and capable of producing a weight of grain equal to what is raiſed upon the beſt ſoils in the iſland,

when circumſtances permit the ſeed to be ſown in a dry bed, and the neceſſary operations to be performed in a ſufficient manner.

Our wool is excellent in quality this ſeaſon; but prices cannot be reported as fixed or determined. What has been hitherto ſold has brought from 26s. to 31s. per tod of 28 lib. It is generally of the long combing kind; is vended principally in Yorkſhire and Lancaſhire, and manufactured into various ſorts of ſtuffs, viz. ſhalloons, callimancoes, &c. Wakefield and Leeds are our chief markets; it is ſorted at theſe places, and afterwards diſpoſed of to the manufacturer.

Our drainage buſineſs goes on ſlower than we expected. A doubt is not however entertained, but that the object in view will be completely obtained when the work is finiſhed. Mr Rennie, the engineer employed to direct the whole operations (who, it is well known, is fully up to ſuch undertakings), is of opinion, that, until the main outfal drain and ſluice are completed, it is unneceſſary to proceed with the internal works; and probably the plan adopted by him is beſt calculated for bringing the whole to a happy concluſion.

The ſowing of turnips has been finiſhed under favourable circumſtances; and, from the land being in excellent condition, we have every reaſon to expect a full crop of that invaluable root.—*July* 13.

Letter from a Gentleman in the County of Cambridge, July 14.

'I ſaw your Magazine in Norfolk, where it is in high eſtimation, and read as much of it there as my time would admit of; but as I had no thoughts, at the time, of writing for it, I did not attend minutely to your plan; therefore, at preſent, can only ſend you a general letter. If this, however, proves acceptable, I ſhall probably try to write more congenially to your plan next quarter.

'When in Norfolk, I found the crops very good on all rich loamy ſoils that were well managed; but on all light ſandy ſoils (with which Norfolk abounds, I think, more than any county in Britain), the crops in general were then very light, though I have no doubt but that the rains ſince received have greatly improved them. My opinion is, that the Norfolk farmers in general, are the beſt in England, perhaps in the world, for managing light ſoils. They commonly get good crops of wheat and barley, even on ſuch poor lands as would not be thought worth ploughing in many other counties: And this they do by managing their turnips in the beſt manner; by marling where practicable, by dibbling and drilling in their ſeed early, and by hoeing the crops in a maſterly manner. But as irrigation or improving graſs land by artificially conveying water over it, is very little practiſed, Norfolk is at preſent defective in that moſt valuable mode of enriching graſs land.

'An enterpriſing Norfolk gentleman requeſted me to point out the beſt and cheapeſt modes of improving his eſtate, which he occupied himſelf; and when I had rode over a conſiderable part of it, I told him that I did not know if I could ſuggeſt any improvements, but ſuch as he had already commenced: however, we preſently arrived at about

100

100 acres of very low poor land, covered with aquatic weeds and coarſe graſſes, along the higheſt part of which ran a copious ſtream of rich water carefully kept from flowing over this poor low land. Here I recommended irrigation, as it would ſoon double or triple the value of the land; and gave the gentleman a plan for flooding, which is to be put into execution as ſoon as convenient after the enſuing harveſt.

'In the county of Huntingdon, which I left yeſterday, the crops of grain, graſs and potatoes, are very good this year, except upon ſome of the lighteſt ſoils, where they are rather ſcanty; but upon the rich loams, eſpecially upon the new encloſed fields of Somerſham Heath, and many other places, the crops are as rich and heavy as could be wiſhed for.

'In the Great Level of the Fens (and I have reſided in that diſtrict for many years), which extends itſelf into ſix counties, and is by much the largeſt and richeſt plain in the United Kingdom, the ground is covered at this time with as many thouſands of acres of luxuriant crops of wheat, oats, hemp, beans, potatoes, graſs and hay, as ever were produced upon any ſoil. The fen hay is almoſt all ripe, and much of it is cut, and thouſands of loads already carried in fine condition. As the winter and ſpring were ſo dry, the ſeed, eſpecially oats, was ſown many weeks earlier than uſual; therefore all the grain, particularly oats, if the harveſt ſhould be favourable, will probably prove much heavier and better this year than cuſtomary. Some wheat in the fens begins already to turn of a yellow colour, and if the weather continue hot, it will be ready to cut the firſt or ſecond week in Auguſt; other grains are likely to be ripe proportionally early.

'A few weeks back, a nobleman, of firſt-rate agricultural abilities, viſited the Fens, and appeared to admire the country, expreſſing much approbation of its huſbandry. The foundation of the fen huſbandry is ploughing and burning the ſward, and then ſowing coleſeed; which, when eaten on the land, enriches the ground ſufficiently for two or three crops of oats, a crop of wheat, a crop of hay, and to graze ſeveral years afterwards; and then ploughing and burning again, without any other manure, except what dung is made on the premiſes. Though almoſt all this dung is carried to the circumjacent, and interſperſed high lands, yet the crops are generally very good, which demonſtrates the goodneſs of the fen ſyſtem. Yea, I believe the fen farmers are the beſt in the world to manage low marſhy ſoils. The fen crops this year are, as the nobleman before alluded to ſaid when he ſaw them, 'too rich,' the ſeaſon having anſwered well for all ſuch ſituations.

'The ſame nobleman was highly admired by all that heard his accurate remarks, and profound obſervations, about ſtock, fen drainage, rotation of crops, artificial ſeeds, and the management of land, &c. &c. When going over one of the beſt managed fen farms, he came to a field where ſeveral ploughmen were employed; and after looking ſome time at the men ploughing, he took hold of a plough:—the men all began to ſtare, and expected to ſee plenty of balks and blunders; but, to the great aſtoniſhment of us all, the Noble Lord ploughed his furrow as well as the fen-men themſelves: and one preſent ſaid, 'his Honour is proba-

bly the firſt nobleman that ever ploughed in the fens,' and perhaps the beſt that ever will. When he left the field, he gave the ploughmen a handſome preſent, and in the evening they all drank his health, with true rural conviviality, and probably will long remember their illuſtrious viſitor, and, with retroſpective pleaſure, often tell the tale to their fellow ploughmen, rural workmates, and admiring grandchildren.

'The markets in this, and adjacent counties, have been rather on the decline for ſome weeks paſt, but now appear at a ſtand. At Cambridge, July 2. wheat ſold at 1l. 13s. 6d. per load of 5 buſhels Wincheſter meaſure. Rye, 1l. 11s. Barley, 1l. 2s. Oats, 1l. to 1l. 1s. Peas, 1l. 18s. Beans, 1l. 10s. per quarter of 8 buſhels Wincheſter meaſure.—At Royſton, July 6. Wheat, 1l. 12s. to 1l. 13s. 6d. per load. Rye, 1l. 13s. Barley, 1l. 2s. 6d. Oats, 1l. 2s. to 1l. 4s. Beans, 1l. 12s. Peas, 2l. per quarter.—At Stamford, Wheat, 2l. 17s. Barley, 1l. 2s. Oats, 1l. 1s. to 1l. 4s. Beans, 1l. 10s. to 1l. 11s. per quarter. At St. Ives, Huntingdonſhire, Wheat, from 1l. 13s. to 1l. 15s. per load. Beans, 1l. 9s. Barley, 1l. 4s. Oats, 1l. per quarter.'

Yorkſhire Quarterly Report.

The hay harveſt is, in ſome parts of this county, in a ſtate of forwardneſs; but generally not more than one third is cut. The crops are rather above the average; thoſe of clover and other artificial ſeeds are good, and from the preſent fine weather, there is a fair promiſe of much being well ſaved. Old hay has declined in price, and is not worth more than 4l. per ton.

The wheats are exuberant and flouriſhing on all ſoils, almoſt beyond example. Barley and oats are rather thin. Beans are a good average. Apples, and almoſt all the common fruits, are very plentiful; and were it not that the ſcourge of war, that diſgrace of humanity, ſeems hanging over our heads, '*every man might ſit under his own vine, and his own fig tree, and none ſhould make him afraid.*' Of rape-ſeed, little has been ſown; but flax is very luxuriant and promiſing. Much more has been ſown than in former years. Potatoes are likely to be productive, and the markets have been long plentifully ſupplied with the growth of this ſeaſon.

The weather has been highly favourable for the turnip fallows, and they are conſequently well made and manured. Many fields of this uſeful root are ready for the hoe, but few are finiſhed. The ſummer fallowing on ſtrong clays, &c. is in an advanced ſtate.

The beſt wheat is now ſelling at 7s. to 8s.; oats 2s. 9d.; rye 4s.; and beans 4s. per buſhel of Wincheſter. Wool, at the commencement of the ſeaſon, was ſold higher than even laſt year, but is now declining.

Cattle and ſheep, both fat and lean, continue at prices very encouraging to the grazier. Hogs are plentiful, and lower in price. Beef, mutton, and lamb, are at 8d. per lib.; veal 7½d. Good horſes enormouſly dear.—*July* 15.

Eſſex

Eſſex Quarterly Report.

Since laſt report, the weather has been exceedingly fickle, till within this laſt three weeks, in which period it was exceſſively hot, and afforded a fine time for the hay harveſt. Graſſes, though thin and light, have been got up in excellent order. The clover, however, promiſes a greater abundance; and ſhould the weather ſtill remain ſettled, which there is every appearance of, a finer ſeaſon will not be recollected. Tares, owing to the ſhowers at the latter end of April, have revived beyond expectation. The grain crops look well throughout the county. Wheats, which were much injured in the winter, are conſiderably improved. Peas, beans, barley, and oats, are very ſtrong and healthy. Hops, which ſhooted at firſt very unkindly, are now in a flouriſhing ſtate, and quite free from the inſect. Harveſt will generally commence in three weeks. —*July* 16.

The following Rewards for Agricultural Improvements, were beſtowed by the Society of Arts, at their Meeting on the 31ſt May laſt.

To the Right Hon. the Earl of Fife, for his extenſive plantations of foreſt trees, and other agricultural improvements in North Britain, the gold medal.

To Lord Viſcount Newark, for encouraging the growth of oak timber, by ſowing acorns and planting oaks, in Nottinghamſhire, the gold medal.

To John Shirreff Eſq. of Captain Head, North Britain, for his plantation of oſiers, claſs 9, the gold medal.

To the Rev. T. C. Munnings, of Eaſt Dereham, in Norfolk, for his experiments on the culture and preſervation of turnips, the gold medal.

To Mr John Knapping, of South Shoebury, in the county of Eſſex, for gaining 230 acres of land from the ſea, the gold medal.

To Mr John Wright of Pickworth, in Rutlandſhire, for comparative experiments in agriculture, the gold medal.

To John Chriſtian Curwen Eſq. M. P. of Workington Hall, in Cumberland, for his experiments on feeding cattle with potatoes, the ſilver medal.

To the Rev. Edmund Cartwright, of Woburn, in Bedfordſhire, for a three-furrow plough, the ſilver medal.

To Dr H. Ainſlie, of Dover Street, London, for his plantations of timber trees, near the lakes of Windermere and Coniſton, the ſilver medal.

To Benjamin Waddington Eſq. of Lanover Houſe, near Abergavenny, for improvements of boggy land, in South Wales, the ſilver medal.

To Mr David Charles, of Weſtmead Langhorne, Carmaerthenſhire, for a machine for laying land level, the ſilver medal.

To Mr Robert Green, of Weſturrating, in Cambridgeſhire, for a drill machine for ſowing peas, beans, &c. the ſilver medal, and ten guineas.

Northumberland

Northumberland Quarterly Report.

From the latter end of April to the beginning of June, the weather was moſtly dry and cold, which checked vegetation ſo much, that at the latter end of May, the paſtures were ſeldom ever ſeen ſo bare, or the meadows ſo ſhort; but though this kind of weather was inimical to graſs lands, yet it was very valuable for working the fallows, which were in general got very clean, and in good tilth. On the 9th, 10th, and 11th of June, this diſtrict was favoured with ſome fine rains, ſince which we have had a ſeries of dry weather, (except a few ſhowers about the 8th July), and at preſent it has the appearance of continuing with increaſed heat and intenſity.

The winter wheat crops are looking almoſt everywhere thin, being ſo much injured by the froſts. The ſpring wheats are more promiſing; and it is to be hoped this warm dry weather will be favourable to the blooming, and keep them from blights and other diſeaſes.

The barley and oats on dry ſoils, have ſuffered much by the drought, and are not only thin, but very ſhort. On deep, ſtrong loams, they are very good.

Beans and peas are everywhere ſhort, but full of flower, and will probably be a better crop than if the weather had been moiſter, and the ſtraw longer.

Turnips and Ruta baga, that were ſown from the latter end of May to the middle of June, are growing remarkably well, having received the benefit of the rains in the ſecond week of June; but thoſe that were ſown after the moiſture occaſioned by thoſe rains was exhaled, have not grown ſo well; and, in ſome ſoils, have not yet vegetated.

The hay crop is univerſally complained of, as being very light.

The wool trade has been ſlow, owing to the unpleaſant proſpect of affairs, and uncertainty of markets. The Yorkſhire dealers have at laſt begun to buy. The prices for long wool is from 22s. to 25s. per ſtone of 24 lib., and of ſhort wool from 27s. to 29s.——*July* 18.

Letter from a Farmer in Wales, July 16.

'We are at preſent buſy with our hay harveſt, and favoured with excellent weather for the ſeveral operations. Where the land is good, the crop is abundant; but, owing to the cold wet weather of May and June, the meadows were chilled, and the produce much limited. Wheat, which in the beginning of June had a bad appearance, is wonderfully improved; and as it enjoyed a fine blooming time, we may expect the quality to be good. Barley, on clay ſoils, is bad, having never overcome the coldneſs of June. Oats generally look well, but will not return much ſtraw: indeed, the bulk of every crop will be far ſhort of what we reaped in the two laſt years. Markets for wheat and oats have lately been rather upon the advance. As for barley, there is a greater ſtock on hand than ever remembered; and, owing to the heavy duty lately impoſed upon malt, the demand is inconſiderable. The paſture lands preſent a good bite, and cattle and ſheep of all kinds maintain

great

great prices. Store pigs are much lower, and the country full of them. They will, however, be of uſe next winter in helping off with our barley.

'Wool ſells well, but varies much in price, according to the qualities. I believe we have more varieties of ſheep in Glamorganſhire, than is to be found in any other county of the ſame extent in Great Britain. Thoſe in the Vale are of a large ſize, carrying long coarſe wool, ſold generally at 1s. per lib. On the mountains, the breed is ſmall, yielding wool that ſells at double the former price. Of late years, the New Leiceſters have had a great run, being not only introduced into the low country, but uſed by the hill breeders as a croſs with their ſmall ſheep. On rich lands, the pure Leiceſters are found to anſwer well; but a mixture is preferred in all expoſed ſituations.'

Letter from London, July 18.

'I hand you, below, the market prices of this day, which have, on the whole, rather declined, owing to the ſtate of public affairs, and the ſcarcity of money. I am juſt returned from a jaunt through ſeveral of the weſtern counties, and had the pleaſure to obſerve, that the fields in general are loaded with as good a crop as ever I beheld. Through Buckinghamſhire and Berkſhire, wheat and beans are cultivated to a great extent, and are moſt luxuriant. The turnip fields are in as fine tilth as garden ground, and the hedge-rows neatly kept. Around Bath, the crop is but middling, but became much better in the neighbourhood of Briſtol. I obſerved ſome fields of oats near Reading, which will be ready to cut in eight days, if this favourable weather continues; but it will be three weeks at leaſt, till any thing elſe is fit for the ſickle. Through the country, there appears to be a great deal of barley in the ſtack-yards; and from the late heavy tax on malt, and the preſent appearance of the crop, the price of this article may ſtill be expected lower. By the Sound liſt, we are informed, that upwards of ſeventy veſſels are ready to ſail with foreign grain to Britiſh ports, which, in addition to the preſent abundant ſupply, muſt tend to a reduction of prices.'

State of London Markets, July 18.

Wheat	42s. to 52s.	Tick beans	30s. to 31s. 6d.
Eſſex and Kent,	55s. to 58s.	Oats, long feed	19s. to 21s. 6d.
Fine do.	62s. to 63s.	Short ſmalls or	
Rye	32s. to 36s.	Frieſlands	21s. to 24s.
Barley	21s. to 24s.	Polands	24s. to 26s.
Fine	25s. to 26s.	All per qr. of 8 Winch. buſh.	
Malt	61s. to 63s. nominal.	Fine flour 50s. p. ſack.	
White peas	35s. to 40s.	Hay, from 100s. to 135s. p. load.	
Boilers	47s. to 50s.	Cattle at Smithfield 5s. to 5s. 10d.	
Grey	34s. to 36s.	Sheep	4s. 6d. to 5s.
Small beans	33s. to 34s. 6d.	Lamb	6s. to 7s.

—per ſtone of 8 lib. ſink.

IRELAND.

[The following Letter was received too late for laſt Number; but, judging it may be uſeful, we have now given it a place.]

Letter from a Gentleman at Dublin, April 20.

THE FARMER'S MAGAZINE renders important ſervice to the cauſe of agriculture, by laying before the public a variety of valuable information. Every wellwiſher to the cauſe muſt be gratified to find, that the circulation of this Work is ſo extenſive, as a rapid improvement in rural ſcience muſt thereby be effected. I will be happy to render every aſſiſtance in my power, to increaſe the demand for it on this ſide of the water.

In the county Surveys, which I now do myſelf the pleaſure of ſending, you will find that the rural management, which has long prevailed in Ireland, is that of raiſing repeated crops of grain as long as the ſoil is capable of yielding any. The land is then left, for a ſeries of years, to acquire a ſcanty herbage from ſpontaneous vegetation, which, for a long time, proves of little or no value. This mode was ſo unproductive, that tillage was almoſt altogether confined to the loweſt order of landholders; thoſe of more affluence limiting their views to paſturage, badly conducted.

To induce a ſpirit for the improvement of ſtock and tillage, the FARMING SOCIETY of IRELAND was inſtituted. By the exertions and example of ſeveral of the moſt enlightened members, improved huſbandry has become faſhionable, and very generally diffuſed throughout the country. County ſocieties are eſtabliſhed in numerous ſituations, and a happy influence now prevails, for a general improvement, and for promoting the comforts of the lower orders. Theſe conſequences are of ineſtimable value.

The moſt enlightened of our agriculturiſts conſider that land, once brought into a fair tillage ſtate, may be kept with advantage, without the neceſſity of a naked fallow, under continual cropping, through means of alternate 'fallow crops,' here denominated 'green crops;' as, by means of green crops in drills, an opportunity offers of keeping the land completely clean. The culture of green crops in drills is invariably recommended; indeed the drilling ſyſtem for grain is gaining ground, Cooke's machine being much approved by thoſe gentlemen who have tried it.

A ploughing match was held here during the ſpring ſhew, which proved a very ſatisfactory exhibition, and truly intereſting. The work performed by the Leiceſter wheel-plough, and Small's plough, was excellent. The latter was declared victor.

A boat, conſtructed for the conveyance of fat ſtock, lately fitted up, has been plying with much ſucceſs on the grand canal from Tullamore to this town, diſtance 59 miles Engliſh. Fare for oxen, 8s. each; cows, 7s.; veal calves, 3s.; ſheep, lambs, and ſwine, 1s. Britiſh money. This eſtabliſhment, when increaſed, and the canal more extended, will prove

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a very great advantage to the remote weſtern diſtricts, as enabling farmers, in ſuch ſituations, to forward fat ſtock to the metropolis; a meaſure they could not, from the length of journey, attempt before, and thereby oblige the landholders to diſpoſe of their ſtock in a ſtore ſtate.

I find by the perſons who come here from your ſide of the water, an opinion prevails, that this country is in an unſafe ſtate for ſtrangers to ſettle in. Ireland, in the year 1798, was in a moſt unfortunate and perilous condition; but happily, the ferment which then raged, is completely abated, and habits of increaſed induſtry and good order are now predominant. I think proper to appriſe you of this deſirable change, that you may take notice of it in your Magazine, to encourage ſuch perſons from your neighbourhood, who may be diſpoſed to ſettle here, where there is a wide field for the employment of intelligent men. I ſhall have great pleaſure to inform you on any ſubjects you require, ſo far as in my power.

Liverpool Meteorology, 1803.

April.

Gentle ſhowers at the beginning. Lofty winds.—8th, Fair, ardent ſun.—17th, Rain, with high winds; Still ſhowery, with much hail.—27th, Froſt.—28th, Gloomy, with fogs; Rain, hail, or ſnow, more or leſs, 13 days; Wind approximating to the weſt.

	Inch.	Dec.		Inch.	Dec.
Fall of rain,	1	75	Evaporation of water, &c.	2	4

May.

1ſt, High winds, with rain, hail, and ſnow.—7th, Great dews, ſo that the hygrometer at noon was 14 feet 3 inch. 65 dec. without any rain.—10th, Gloomy cold winds, rather ſtormy.—14th, Fair ardent ſun.—25th, Much rain; ſhowery to the end.

Rain, hail, or ſnow, more or leſs, for ſixteen days. Great approximation of wind to W.

	Inch.	Dec.		Inch.	Dec.
Fall of rain,	1	7	Evaporation of water,	2	7

June.

Showery.—4th, Thunder ſtorm, with much rain in the time; fair and ſun.—10th, Much rain.—16th, Windy; fair ardent ſun, cold winds.—29th, Eight o'clock A. M. thick fog. Hygrometer 14 feet 2 inch. 8 dec. fair.

Rain, more or leſs, thirteen days. Greateſt approximation of wind W.

	Inch.	Dec.		Inch.	Dec.
Fall of rain,	3	28	Evaporation of water,	2	56
January to June incl.	11	73	Do. do.	11	91

G. J.

OBITUARY.

Died at Edinburgh, upon the 2d April, Sir *James Montgomery* of Stanhope, Baronet, late Lord Chief Baron of the Court of Exchequer, much regretted by his numerous friends.

Sir James Montgomery was born in the year 1721, being ſecond ſon of William Montgomery, Eſq. of Magbiehill, to whom the county of Tweeddale was indebted for the introduction of an early ſpecies of peas, and of the red oats, the moſt valuable variety that can be cultivated in an upland diſtrict. Sir James was the laſt ſurvivor of the county ſheriffs appointed by the Crown after the heritable juriſdictions were aboliſhed, and he was the firſt Scotſman preferred to the dignity of Lord Chief Baron of Exchequer in Scotland, that office having always, before his time, been held by Engliſhmen.

Before the middle of laſt century, the main diſtinction aimed at by country gentlemen, above the character of mere Nimrods, was that of claſſic learning; and the veneration, paid to ancient languages, was carried to ſuch a height, that the inveſtigation of the nature of words was in danger of occupying excluſively that of the nature of things. Fortunately, at the period alluded to, a ſpirit of enterpriſe in farming aroſe among the Gentry in Scotland; and England and the Continent were reſorted to for rural information, inſtead of the antiquated works of Cato, Virgil, Varo, and Columella. The Gentry, thus informed, took the lead in the verification of principles by experiment; and the tenantry, by various modes of moral excitement and encouragement, were induced to follow the example ſet to them. Sir James Montgomery was among the firſt to encourage this ſpirit of improvement in the various capacities of country gentleman, judge, and legiſlator. To him, in a great meaſure, Scotland is indebted for the act of Parliament, relaxing the reſtrictions of entails; that it was not more extenſively uſeful, proceeded from no fault of his, but from the formidable oppoſition that enſued.

Sir James, at an early period, introduced the culture of turnips into Tweeddale. We ſtate, upon the authority of Adam Kennedy, Eſq. of Romano, a ſurviving contemporary, and fellow-labourer in the introduction of improved farming, that he himſelf raiſed turnips in drills ſo early as 1757, and that Sir James had the ſtart of him by two or three years in this ſpecies of culture. This is confirmed by the information of William Graham, a confidential ſervant or grieve of the family, from which it appears that Sir James raiſed turnip upon his farm of Deanshouſes, pariſh of Newlands, both in broad-caſt and drills, ſo early as ſeaſon 1754, the latter dreſſed by a regular proceſs of horſe-hoeing. He alſo introduced the uſe of two-horſe ploughs without a driver, and for that purpoſe was probably the firſt in Tweeddale who improved the breed of horſes by the importation of ſtallions. It is a corroborative

fact,

fact, that for many years his male foals were kept and sold as stallions for the improvement of the breed in other quarters of the country.

In the Agricultural Survey of Tweeddale, notice is taken of Sir James's attempts to cultivate moss soils. Where the plough was used, and the moss of a moderate depth, so as to allow the subsoil to be turned up and mixed with it, the issue was generally successful, even to the effect of raising pasture of sufficient luxuriance for rearing the largest sized ox ever bred in Tweeddale. Where the spade was used, as in deep flow-moss, after much the same mode as adopted at Swineridge-muir, in Ayrshire, the effects were by no means so successful, probably owing to the difference of climate, or quality of the moss.

Sir James's improvements upon the estate of Killern, in Stirlingshire, were reported by Mr Wight, who surveyed that county in 1777, as furnishing instances of the most perfect husbandry. We would have extracted the whole passage alluded to, but the length of this article calls upon us to bring it to a conclusion.

In the dedication of the Agricultural Survey of Tweeddale, inscribed to him by the author, his own parish minister, and evidently expressive of real heartfelt esteem, Sir James is represented as a man of most amiable dispositions; 'whose long continued attention to the management of the public concerns of Tweeddale; whose readiness to assist, with salutary advice and counsel, every individual of her sons; together with his conciliatory urbanity of manners, originating in humanity, not in artificial politeness, had since stamped him with the character, as they had gained him the appellation, of the Father of the County.'

On the 17th of June, died, at Haddington, Mr Robert Sommerville, surgeon there.—Mr Sommerville possessed a large stock of natural abilities, which he cultivated assiduously, and, on various occasions, displayed considerable information concerning the rural and political economy of Great Britain. He assisted in conducting the three first volumes of this Work; and was much employed by Sir John Sinclair Baronet, during the period he presided at the Board of Agriculture. A number of his communications are to be found in the Transactions of that Board, and also in those of the Highland Society; from whom he successively received prize medals, and other marks of approbation.

Died lately, at Crawhill, Mr Thomas Lee, an eminent East-Lothian farmer.—Mr Lee came from Berwickshire to East-Lothian, at Whitsunday 1771; at which time he entered to *Thornton Loch*, a farm belonging to Mr Nisbet of Dirleton. Being well acquainted with the turnip husbandry, he and his two brothers, who had also taken farms from Mr Nisbet, were among the first who introduced the culture of that valuable root, on a large scale, into that county, over which it soon spread with great rapidity. Owing to the plentifulness of sea-weed, it was then customary to keep the coast side lands constantly under grain crops; and when Mr Lee first left the fields unsown with grain, that were intended for turnip, his sapient neighbours sagely concluded that he was unable to purchase seed corn, and, of course, prognosticated his immediate downfal.

ſal. A few years, however, convinced them that they had entertained an erroneous opinion, and did away the prejudices originally imbibed againſt Mr Lee, and the ſyſtem introduced by him. In 1793, Mr Lee removed to the farm of Crawhill, on the ſame eſtate, which he continued to cultivate in the like ſkilful manner as diſplayed in his firſt attempt. In a word, he was an excellent farmer, a good neighbour, much reſpected by his friends, and now deſervedly lamented by every one who had the pleaſure of his acquaintance.

LITERARY INTELLIGENCE.

We are happy to learn, that 'An Eſſay on the whole Proceſs of Propagating Rape or Cole Seed, on various Soils, including the particulars of the modern mode of cultivating it with great ſucceſs, even on ſtrong Clays,' will ſoon be publiſhed by Mr Scott, Chatteris, Cambridgeſhire. This publication is ſtrongly recommended by Sir John Sinclair, Baronet, as of importance to Britiſh agriculture, being wrote by a gentleman who has enjoyed extenſive opportunities of acquiring a thorough practical knowledge of the ſubject inveſtigated.

NOTICES TO CORRESPONDENTS.

Epicurus's Reply is under conſideration.

The *Strictures* of *T. X.* upon the malt tax ſhall appear in our next.—This Gentleman will pleaſe attend, that the leading article of intelligence is always drawn up by the Conductor, and that he alone is reſponſible for the information therein given.

Mr T. S.'s Anſwers to the obſervations of '*A Friend to Improvements*;' and it is not our fault that they are delayed. Thinking, as we do, that he miſtakes the queſtion in various reſpects, a few remarks ſhall be added.

We are extremely ſorry that the paper *on the Cultivation of Moſs Land*, which, in our laſt, was promiſed a place, has been accidentally neglected. We ſhall compenſate that deficiency in our next Number.

The ſecond Letter *on Thraſhing Machines*, the Review of Mr Amos's *Treatiſe on the Drill Huſbandry*, and a variety of other articles are unavoidably poſtponed. The quantity of materials now in hand renders it impracticable for us to inſert the favours of our correſpondents regularly; but impartial attention ſhall be beſtowed upon them in courſe.

The Surveys of the Counties of *Wicklow*, *Dublin*, *Down*, and *Cavan*, with ſeveral other agricultural publications, are in the hands of our Reviewers.

Various articles of intelligence were too late of coming to hand.

No. XVI. will be publiſhed on Monday the 7th November.

ERRATA.—In page 297, 18 lines from bottom, inſtead of *annually*, read *which annually*; and in the ſucceeding line, for *confine*, read *confirm*.